Washington State Department of Ecology

Historically Speaking

An Oral History
In celebration of the first 35 years, 1970-2005

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Ecology Publication #05-01-006

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Written and edited by
Maria McLeod, oral historian

Under the direction of

The Department of Ecology Oral History Committee
James C. Knudson, chair, and Joy St. Germain, executive sponsor

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Washington State Department of Ecology
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Forward

By Daniel J. Evans
Washington State Governor, 1965-1977

The 1960s were times of conflicting activism. The civil rights movement vied with a growing anti-Vietnam war protest for citizen support. Quietly, but with increasing intensity, people's concern for the environment grew. The first national Earth Day celebration in the spring of 1970 occurred just 12 days before the tragic killing of college war protestors by National Guardsmen at Kent State University.

Here in Washington state the environmental movement was strong and deep but splintered into scores of competing organizations. Wise leaders worked to build lobbying strength for the environment and created the Washington Environmental Council in 1967. The next session of the legislature produced modest environmental results.

I decided to call a special session in 1970, concentrating on environmental protection. In preparation we held a meeting at Crystal Mountain in September of 1969. Representatives of the Washington Environmental Council, legislative leaders and appropriate state department heads gathered to discuss environmental challenges. In two days of discussion, over 60 proposals were identified. I asked each participant to identify their top three issues and we went through the list, identifying choices.

Six issues emerged with overwhelming support. Leading the list was creation of a Department of Environmental Quality. Environmental leaders agreed to focus on these six issues; legislators promised to give priority hearing to these bills, and department heads drafted legislation.

The session quickly bogged down on new and sometimes controversial environmental legislation. Halfway through the session it appeared that none of the priority bills would pass. I was in Seattle on other business and was asked to appear on KING-TV to discuss the difficulties we were facing in the legislature. I pleaded with citizens to contact their legislators. The next morning the *Seattle PI* (*Seattle Post-Intelligencer*) ran a front-page headline story on the hold up of environmental bills, including identifying committees where bills were stuck and which legislators were blocking action. I faced a firestorm from legislators, many of whom had been wrongly identified as opponents by the newspaper. I tried to calm lawmakers, but soon realized that we were hearing mightily from the people. Five thousand telegrams flooded the Capitol the next day, phone lines were jammed and bills began to move. Ultimately five of the six priority bills passed and the sixth, shoreline management, was adopted by initiative the same year.

The State Senate insisted on a name change for the proposed new department; so it was officially designated the Department of Ecology. The legislature received deserved credit for a stunning environmental session, all accomplished in 32 days.

Washington was the first state to create a Department of Ecology and preceded the establishment of the federal Environmental Protection Agency. As the department built its reputation, it became the model used by many other states. We were asked by the national administration and many governors how to develop a good environmental department.

Those who were teammates at the beginning can remember with pride the national leadership this state gave to the complex task of environmental protection and management.

Introduction

by James C. Knudson, Oral History Committee Chair
Department of Ecology Employee, 1970-2005

When Tom Fitzsimmons became the Washington State Department of Ecology's eighth director in 1997, he invited a group of 16 long-term employees to join him in an informal conversation. Many of us had been with the agency since its formation in 1970, and so he began the meeting by asking the group of us to give him a sense of what Ecology's journey had been, since Ecology's founding, as an organization and as a culture. He also asked for our suggestions regarding where the agency might be headed.

We realized that very soon the stories and "lessons learned" we carried around in our heads could be lost or scattered as we retired and left the agency. This meeting, which stands in my memory as the only time a new director had reached out to us in this manner, became the genesis of the Ecology oral history project—our attempt to capture the agency's historical moments as told by those who lived them.

Shortly thereafter, I contacted Anne Kilgannon, one of two professional oral historians for the Washington State Oral History Program at the Office of the Secretary of State. She urged us to develop a plan to articulate our purpose, and she educated us in the details of fashioning an oral history. Where Anne's work has focused on producing oral histories of Washington's prominent individual political leaders, including legislators and governors, our oral history is the first in Washington to feature an entire state agency.

In 1999 we formed the Oral History Committee to plan for the project and to acquire departmental funding. In 2003, after an award of a Savings Incentive grant, we hired Oral Historian, Maria McLeod of McLeod Communications. The committee then faced the daunting tasks of deciding which issues to feature and whom to interview. Maria's sage advice to us was to identify compelling stories to serve as chapter themes in order to draw the reader into the stories of our agency's history as told in the voices of dynamic storytellers, the interviewees themselves. Through these specific stories, and their storytellers, a larger picture and a more expansive historical perspective is revealed, as each chapter features the texts of three to four different interviews with varying perspectives, each supporting and building upon the other. The result is 13 chapters that illustrate the successes and challenges we have experienced in trying to carry out our legislative mandates.

Our hope is that this oral history will be read by all who seek a deeper understanding of this agency and its legacy. Whether those individuals are current, retired, or new employees of Ecology; legislators, students, or teachers; newly-appointed directors of Ecology, or any member of the general public, we hope all will find a story and a voice of interest in these pages.

In addition to understanding the present through the lens of the past, I hope the reader will also catch a glimpse of the future. As the 19th century British novelist, Margaret Fairless Barber has said, "To look backward for a while is to refresh the eye, to restore it, and to render it more fit for its prime function of looking forward."

The opinions expressed within the pages of this oral history are those of the interviewees and interviewers and do not necessarily reflect the views of the Washington State Department of Ecology.

Chapter One - The Meaning of 'Ecology'

by Maria McLeod, oral historian

In 1966, a man named Jim Dolliver read a *Harper's Magazine* article on environmental issues that moved him to write a long memorandum to his friend, stating that Washington's environment was a matter that should be on their political agenda and that they ought to spend time thinking about it.[i] They were uniquely situated to do more than think about it. These men were, after all, two of the most powerful people in Washington state.

As part of their "Blueprint for Progress," Republican Governor Dan Evans and his chief of staff, Jim Dolliver, would set in motion governmental reorganization that would forever alter Washington's landscape, enhancing both the government's accountability to the public it serves and government's capacity to meet the needs of the state. Their ability to push forward environmental legislation, forming the Department of Ecology, stands as a testament to their visionary wisdom.

Now, 35 years after Gov. Evans and Justice Dolliver (Dolliver became Washington state Supreme Court Justice in 1976) put their priority bills before the Legislature, the agency has grown from 170 employees to 1,400. All the while, the Department of Ecology has been working collaboratively with the public, businesses, tribes, industry, environmental groups, federal and state agencies, and others to give voice to that silent constituency to which our own quality of life is inextricably linked: the environment. The Washington State Department of Ecology marks the occasion of its 35-year anniversary with this oral history. It begins with a forward by Gov. Evans and then begins again, here, with the words of Justice Dolliver, the primary author of much of Washington's early environmental legislation, who passed away in 2004 as interviews for this book were being conducted.

Department of Ecology 25th anniversary celebration, 1995: Wes Hunter, First Deputy Director; Don Moos, Third Director; Chuck Clark, Sixth Director; Chris Gregoire, Fifth Director; Mary Riveland, Seventh Director.

In his own oral history interview, published in 1999 by the Washington State Oral History Program, Justice Dolliver was asked about the remarkable success of the passing of five of the six pieces of legislation that came out of a special 32-day legislative session in 1970.

He responds, "The idea of environmental protection for the next generation was becoming a very popular notion. And we had good leadership. There was no question the Republican House leadership was willing to go with Evans' encouragement. And in the Senate, the Washington Environmental Council worked very hard. And, in the Governor's Office, we did everything we could. More than anything else, I would emphasize the particular

temperament at the time. There was no suspicion of environmental supporters, and the environment was not a partisan issue."[ii]


Kiuchi

Early in 1970, Ats Kiuchi was working as a Public Information Officer for both the Water Pollution Control Commission and the Department of Water Resources, two of the four predecessor organizations that would become part of the Department of Ecology where Kiuchi would soon be working in the same capacity.

> Ats Kiuchi: "As a result of Governor Evans' interest in consolidating agencies, especially the natural resource agencies, we were on the verge of internally reorganizing the government. When Governor Evans formed the Department of Ecology, he called the 1969 41st Legislature back for an extraordinary session on January 12, 1970, after the regular session was over. Governor Evans used the media—he was great for that—using the *PI* (*Seattle Post-Intelligencer*) and the *Seattle Times* to call the Legislature back, stating they had unfinished business. The legislators were really reluctant, but he used the media and the wave of public support for the environment. Everybody wanted to get on the environmental bandwagon. He had just passed legislation to form the Department of Social and Health Services during regular session, when people had said that would never go. That agency brought everybody together, all of those smaller agencies in the social realm. So, he was fresh with victory when he called back the legislators to form the Department of Ecology. Thirty-two days later, on February 12, 1970, the Legislature approved Engrossed Senate Bill 1, forming the Department of Ecology."[iii]

Joan Thomas, one of the state's most prominent environmental leaders, was then president of the League of Women Voters, and had, in 1967, helped form the Washington Environmental Council (WEC) with Tom Wimmer, who served as president with Thomas as vice president. The WEC was created as an umbrella organization, which brought together representatives from national environmental organizations, such as the Audubon Society, as well as regional and local environmental groups, building a membership base and establishing an influential environmental coalition in Washington state. Thomas went on to serve as president of the WEC and remains board member *emeritus* at the time of this writing. In the late '60s, she worked to help bring the then Democratic Senate into support for the governor's proposed environmental legislation, particularly the pieces that formed the Department of Ecology.


Thomas

> Joan Thomas: "This was the time of the Vietnam War and youthful restlessness. The environment was a hot topic, and, of course, Governor Evans had the right instincts. He grew up here. He was an Eagle Scout. He had been camping, climbing, kayaking, everything—all over the state. He really cared. In 1969, Governor Evans convened a meeting at Crystal Mountain Lodge near Mount Rainier where he presented a list of bills to his cabinet, legislative leaders and the environmental community. One of the issues in the legislation was whether the Department of Environmental Quality, as he then called it, would be responsible to the governor, or whether it would be an agency responsible to a commission, as the Game Department

was at that time, and as the Parks Department and as Fish and Wildlife are now. Many in the environmental community wanted Ecology to be run by a commission. The thinking at that time was that having the agency accountable to a commission took it out of politics. I have learned, since then, that there's no governor anywhere who wants an agency head who is not responsible to the governor. Dan Evans certainly felt that way. And so, the course of the politics of the legislation was to reconcile those two points of view, developing an Ecological Commission, which would be advisory to the director, but appointed by the governor. It did not have the power to hire and fire the director as other commissions at the time did. So, Dan Evans had proposed what he called the 'Department of Environmental Quality,' which did not have a commission, with the support of the House Republicans who had the majority. In the Senate, the Democrats had the majority. There was a lot of lobbying by industry and a lot of lobbying by the environmental community and probably by some of the other agencies as well. So, there were compromises that had to be reached. The people who wanted a commission had to accept the Ecological Commission. Business got the Pollution Control Hearings Board, and the major industries got the Industrial Section within the Department of Ecology. That was another part of that compromise. The oil refineries, the smelters and the pulp mills, would be handled by a section, and so those industries got that.

But the original bill, House Bill 47, refers to the Department of Environmental Quality. The name was changed with Tom Wimmer and me in Senator Martin Durkan's office. I remember Durkan saying, 'It can't have this name. This is Dan Evan's Department of Environmental Quality. You have to call it something else.' So, Tom Wimmer and I came up with ecology. The issue with the name of the agency was just pure politics. If we called it something else, it still wasn't the Senate Bill, but it at least makes it acceptable to the Senate because then it wouldn't be the Dan Evans' Environmental Quality Bill. It was partisan, but at a high level, not petty. Evans had a priority list of the six items that had been agreed to a Crystal Mountain. In the 1970 special session, he got five out of the six. Naming the agency the Department of Ecology versus the Department of Environmental Quality was a matter of not letting him claim total credit for the passage of that bill, which I don't think he really would have, but it seemed important to the Senate to not call it that. Senator Durkan was a key player in all of the legislation considered in the 1970 special session.

During those early years, Jim Dolliver was my main contact and line into Evans. I never spent much time with Dan Evans. I didn't need to. My tap line was Martin Durkan in the Senate, Stewart Bledsoe in the House, and then Jim Dolliver. Once or twice a week I made those rounds, and I ended them with Jim Dolliver, telling him what was happening. I'd start with what the House wanted; then I'd go to the Senate and ask, 'Can you accept this?' If the answer was no, I'd have to go back and say, 'Well, the Senate can't accept that. What's our next move?' At the end of the day, maybe two or three days a week, I would then report to Jim Dolliver. If necessary, the governor would talk to his leadership in the House. Because the Senate, at that time, was in the hands of the Democrats and the Republicans had a majority in the House, my work required a lot of crossing over."

In order to choose a new director, Gov. Evan's set up an advisory committee, appointing Thomas among others. She had established her relationship with Evans early on as head of the League of Women Voters while working on property tax reform and other issues,

John Biggs, First Director 1970-76.

helping to create the Tax Board of Appeals, to which Gov. Evans later appointed Thomas. It was during that era that she developed her interest in issues of water quality and water resources, realizing the need to unite these efforts together under one agency under the direction of powerful and dedicated leadership.

Thomas: "Evans appointed Tom Wimmer and me, Sam Kinville from Labor, Gordon Tongue from industry, Jack Rogers was with the Association of Washington Counties, and Lew Bell, an attorney from Everett, was the chair. We convinced everybody that we would give Dan Evans three names, which is what he'd asked for. And we gave him three names: John Biggs, John Biggs, and John Biggs. John was the director of the Game Department and he was an outspoken member of the Water Pollution Control Commission. He knew how to work the Legislature. Wes Hunter, his deputy director, whom he brought with him from the Department of Game, echoed that. Biggs had political savvy. He had a built-in constituency, the Washington State Sportsmen, and then there were others. For example, Tom Wimmer and Lew Bell were in the Steelhead Trout Club, which broke away from the Sportsmen's Council over the Cowlitz Dams—the Mossyrock and Mayfield—which provided power to the City of Tacoma. Biggs fought the dams because they would destroy the salmon. The other thing about John Biggs was that he was very active in getting signatures for the bill that set up the Interagency Committee for Outdoor Recreation, which protects and restores wildlife habitat as well as develops recreational areas. John Biggs was a good old boy. These guys were fishing buddies or hunting buddies. Anyway, John Biggs was the person the committee wanted. He was politically well connected, and I thought he had a good record. If we had put the name of any Republican on that list, Evans, as a Republican, would have appointed that Republican. John Biggs was a Democrat."

For Ats Kiuchi, the challenges facing the four separate organizations—Water Resources, Water Pollution Control Commission, Air Quality Control from the Department of Health, and the Solid Waste Section, also from the Department of Health—which had consolidated to form the Department of Ecology, were very real. For those in the communications realm of government work, as Kiuchi was, it was an era when educating the public and sharing information regarding governmental processes was new terrain. At the Department of Ecology, the challenge of external communications and keeping the public informed was coupled with the struggle of internal agency communications, defining the scope and structure of the agency as it took shape from within.

Kiuchi: "When the agency was created, effectively, July 1, 1970, we began with the throes of reorganization, bringing related agencies together to form the Department of Ecology. The new director, John Biggs, and the deputy director, Wes Hunter, were greeted by the separate organizations' executive directors, each of whom wanted to protect their turf. While we were going through that exercise, the legislative session in 1971 brought major legislative pieces to this new agency, to us, and we weren't ready for it. We were still dashing around, trying to figure out how we were going to organize ourselves.

When Mr. Biggs was named our director by Governor Evans, he left the Department of Game and also brought with him Mr. Clar Pratt. Clar was the senior information officer for the Department of Game. He was used to handling the media. So, the two of us shared responsibility. I didn't do it all by myself. Clar had worked with Mr. Biggs, and Clar understood where he came from. John Biggs was one of those people who believed very strongly in public outreach. As a matter of fact, I think that was because of his relationship with the state Game Commission, which was very strong. They had a lot of power, and the commission could affect decisions made by the director. I think Mr. Biggs became sympathetic, or understanding, of public input and why the public should be informed. The rest of us—and by the rest of us I mean the other agencies that formed the Department of Ecology—hadn't included public input in our process. The bureaucrats kept bureaucrating along, paying very little heed to what the public needed. We just went along, trying to keep the legislators happy, and the governor happy, but there hadn't been public input.

So, one of the major challenges Clar and I had, as information officers, was to start breaking this down. What did the Legislature mean? How do we explain what we are? One of the first things we put out was a little brochure called, 'Eco-lo-gy,' describing what ecology meant. The word, 'ecology,' is Greek for 'house of man.' It was a small brochure full of beautiful pictures of mountains and forestlands. It was full of semantics and very little substance. We also tried to explain to the public the challenges brought by the '71 legislation, including the Model Litter Control Act, Coastal Protection Act, State Environmental Policy Act, and Shoreline Management. We tried to explain it in a way that we all understood what we were supposed to do with these new legislative pieces.

So, we started out with 172 full-time equivalent employees from Water Resources, Water Pollution Control Commission, Air Quality Control and Solid Waste. Like I said, each of the directors or management representatives from these four areas had their own turf to protect. They wanted to make sure that their programs didn't get lost in the reorganization, and that they wouldn't lose any territory or wouldn't lose any people or gain more people. Like any re-organizational plan for either private industry or government, everyone came up and protected their own resources, and they resisted any changes. They said, who's this guy from the South side, from the Department of Game? What does he know? I give John Biggs a lot of credit because he had tremendous management style and ability.

For almost four months we wrestled with an organizational plan for the department to merge all these guys and keep these people happy. You had that political human interplay within the organizational structure, and it was difficult. John asked me to write for a Ford Foundation grant to develop an organizational plan. I wrote the grant, and we got $29,900 grant to hire the Stanford Research Institute to do the plan. The book is still at Ecology, *Development of an Organization Design for the State of Washington Department of Ecology*. Stanford came up with the idea that air pollution, water pollution, and those pollution programs could be tied together and merged as one. Public input, like water rights—whether we directly deal with industries or whether we deal with private farmers—would be an external activity. Well, that was a wonderful plan, and we went along that for a while, until we ran into money. You see, our programs, the pollution programs especially, were heavily funded by the federal

government. So, you couldn't mix the money. You couldn't mix the funding. You had to keep accountability for each dollar you got. If you did it for air, you couldn't mix it with water; you couldn't mix it with solid waste. So, we went through the bookkeeping, accounting process, and that killed it. Then we went back to the drawing board, and John was cool. He said, OK, all you guys, all you chiefs, now you get the directors and your staff and come up with an organizational plan that will make it. They went back to their little groups and started drawing lines and boxes and came back, and there was no unity. Nobody would agree. So, then John said what he always had in the back of his mind. He said, OK, we all agree that it's almost impossible. He said, here's what we're going to do, and that's what we did. Basically, it's the same structure you see at Ecology today, the separate programs."

In the fall of 1968, Jim Knudson, then 26, had left his job with the National Center for Air Pollution Control, a predecessor organization to the Environmental Protection Agency, to move across country and join the Office of Air Quality Control in Seattle, then part of the Washington state Department of Health. He occupied an office in Seattle's Smith Tower, once known as the tallest skyscraper west of the Mississippi, where he would watch Seattle developing and expanding below.

Knudson

Jim Knudson: "I had an office that faced south, toward Seattle's King Street Station. I watched the Kingdome go up. But I was very engaged in my work, which was to help write the first nationwide rules dealing with air pollution from sulfite and kraft pulp mills. I had begun studying the processes, collecting information, visiting plants, and in some cases, doing stack-testing measurements, too, to help develop these rules that came out. We were working cooperatively with the state of Oregon, holding joint meetings, and developing a common set of rules to approach the pulp mills. The air pollution was so obvious from these mills, not only particulates, but also odorous emissions, too. The environmental impact was not only a human health issue, but the aesthetic problem was obvious. We didn't only come out with a study, as had been done on the federal level. We did a study, which was followed by actions, and actions were followed by results, which made the work very rewarding. There was also a set of parallel efforts going on with respect to the aluminum industry because Washington had seven or eight aluminum reduction mills. And that process really began with the formation of Ecology in 1970.

Actually, it had been a relatively short period of time that I worked for the Department of Health, when, boom, we suddenly learned in 1970 that there was legislation passed that approved converting us to the Department of Ecology. Of course, we were all wondering where we were going to end up and how we would talk with the water-quality people when we'd been used to talking to air-quality people most of the time. Certainly, there was talk about where the executive director of our agency was going to go, and those kinds of bureaucratic concerns, which is only normal. I do remember a discussion of the name the department. When I heard it was going to be the Department of Ecology, my first response was, 'It sounds like a division of a university. It sounds like part of a biology program.' I was concerned that would be a confusing factor. As a matter of fact, many of the other states that later formed similar groups had a more regulatory tone, such as the Department of Environmental Control, or Environmental Management, or somehow had the word 'environment' in the title. We were, for some

time, the only state agency that has the word 'ecology' in its title. Now there's one other, a state agency in Arkansas, the Department of Pollution Control and Ecology. But it's a name that's stood the test of time because certainly we've moved away from the main focus being the end-of-pipe treatment. We've moved into the wider world, and that's certainly ecology.

When I transitioned to the Department of Ecology, I joined their Industrial Section, which was a cross-media section developed to regulate the large industries, pulp and paper, aluminum smelters, and oil refineries. Some of the people working in that section were engineers brought in from water quality. From a structural standpoint, it really was like joining a new organization. There were a few folks I knew, but I had a whole new set of supervisors. Also, I had been looking at King Street Station in downtown Seattle, and then I was looking at the woods of Lacey. Physically, it was quite different. A lot of work we had been doing, we continued to do, but we all broadened out. All the air-quality people became familiar with the water-quality rules. We negotiated water-quality permits, and the reverse happened to the water-quality engineers. So, we became familiar with another set of rules and requirements. The Industrial Section was really important because as we were working with large industries, it helped us look more holistically at attempts and efforts to control these environmental problems and not end up with trade-offs between air and water and solid wastes—certainly to be aware of that. It was good for industry and it was good for us. It was a very creative way to blend us together. I think the Industrial Section proved to be one of the more successful early attempts to bring both disciplines together and operate."

Alice Adams was the agency's first receptionist. She went on to work for other agency programs, serving Ecology for 16 years. While many refer to her as the "mother" within the agency, Adams prefers the term "sounding board," having served as a sympathetic ear to those who sometimes sought consolation or advice. In the beginning, she worked the front desk at Abbott Raphael Hall on St. Martin's campus, a one-time dormitory with rooms that had been converted into offices for the new agency. Adams also was editor of "Adam's Rib," the first agency newsletter. She recalls the steps she and others took bring people together when the agency was formed.

Adams

Alice Adams: "When the Department of Ecology came into being, I was with Water Pollution Control Commission as the receptionist. So, I stayed on in that capacity with the new department. But everything changed. We had to start from scratch. I remember a group of Water Pollution Control employees gathered in the lobby, wondering what 'ecology' meant. They had to look it up in the dictionary. It was all so basic. Finally, we moved over to Lacey, to Abbott Raphael Hall on St. Martin's campus. One of the first steps for me, as the receptionist, was to put together phone lists. That way you got to know people because some of them, like the air-quality people, came from Seattle and Redmond. So, I met a lot of them just by asking their name and what they did and where they were located. Everyone was excited about being part of the new agency. I've never known a group of people who were willing to work so hard. You never heard a person say, 'That's not in my job description.' That just wasn't said. And

John Biggs, our new director, let you go, in a sense, to do it your way. No one could stand up and say, 'We've always done it this way.' It was all new.

Of course, they were bringing new people in all the time. I was talking to Howard Steeley, a sanitary engineer with the Water Quality Program, who said, I wonder if we could have newsletter? I told him that I'd check on it. So I did, and the management said I could do it, but it had to be one page, and they had to review it before I could distribute it. I said, hey, that's OK. They reviewed it for about a month, and then they didn't review it after that. I tried hard not to offend, and I knew the things that did not belong in print, so I never had a problem. It was a way to let people know about job openings, and I included bulletins and such, but I also wrote a lot of silly nonsense. Well, here's one from December of '77. I wrote things like this, 'Did you know if you kiss your wife or husband good-bye in the morning, you're less likely to have an accident on your way to work? Isn't that a rewarding insurance policy? Speaking of glowing, Ced Drucquer lit up like a 500-watt bulb on a quick flight to San Francisco. An exchange of ideas with a beautiful lady, and Ced is no longer a bachelor. We wish him bluebirds. It's a time to remind you again to drive a little slower for those little under-slung creatures crossing the roads. As I have told you in the past, they are love-struck and their judgment is poor. We also have them in our parking lot, and their skittering causes near misses and shattered nerves at times, but the caution is worth it.' I also inserted articles to remind them to give their blood, and give to the food drives. Like this, 'Our elves will be collecting again for the Food Bank. So, grab that can of food when you head out to work and let us make sure people aren't hungry. Our final day will be the 22nd, so open your heart and your wallet to the food bank.' And people did. Our people were so generous—just a nice bunch of people."

For many, the success of Ecology's early years, and the agency's ability to develop and meet the challenges that lay ahead, was directly related to the two men who led the agency, and to the strength of their relationship. John Biggs and Wes Hunter met in 1945 at the Department of Game when John Biggs was assistant director and Wes Hunter, just back from serving for five years in the military, had just become the department representative for education and information. When Biggs became director of the Department of Game, he promoted Wes Hunter to deputy director, developing a working relationship and friendship that worked to their advantage when they stepped in to lead the new Department of Ecology 25 years later.

Kiuchi: "Wes, the Deputy Director, was tough—an old school type of a guy. And I think he relished that role. But I worked with him almost daily, and he was the guy you went to. He was loved by many, but he could be loud and he could be tough. In some ways, he was the bad cop, and John Biggs was the good cop. But the good cop was hard to get to for the rank and file, so Wes dealt with a lot of personnel issues. But I've been privilege to those meetings where the two of them would get together in the office and talk about issues. They were really two people who worked so well together, but they had such diverse personalities. I don't think any other combination would have worked in our formative years. If you had two bad cops or two good cops as deputy director and director, I don't think we would have made as much progress as we did.

And they worked well together in other ways, too. I remember one instance when the Simpson-Lee Paper Mill was dumping right into the Snohomish River. We kept giving

them extensions to comply, but they weren't about to make the changes. They were going to outlast us. So we went up there and held a public hearing, and we had to tell them in the public hearing that they needed to invest in the necessary environmental controls, or pay the pollution penalties until they do or they would have to close down. There were about 150 to 200 mill workers employed there. People were highly emotional. They were going to tar and feather us. This happened at the start of what I call the 'environmental backlash' that started in about 1975, when people and legislators started saying, the environment is costing us jobs. It was the old 'economy versus environment' argument. When times are good, you can afford to have environmental control. When times are bad, you've got to forget the environmental controls. Anyway, Wes knew some of the labor guys, and he went up there and talked to them. The labor guys said, yeah, it's a dangerous place to work. The safety factors aren't there, and we just dump stuff in the river. Well, a lot of those guys were fishermen and sportsmen, and they knew what was happening to the river from all that pollution and chemicals they were dumping into the river. Anyway, to make a long story short, we held another big public hearing. Wes brought John aboard, and John showed up at the public hearing when we were going to announce their options, and, by golly, the pulp and paper workers union for that mill showed up and supported us. Wes and John were great with sportsmen because they were from the Game Department. So they knew all the sportsmen's groups and duck hunters and the fishermen groups, so they had talked to those people."

John Biggs, the agency's first director, was with the agency from 1970 to 1977, retiring when Dixie Lee Ray became governor. Biggs passed away in 1990. Prior to the formation of Ecology, Wes Hunter's role as John Biggs' deputy director for the Game Department was to work with the Legislature and handle many of the agency's personnel issues. Hunter soon found that their work for the Department of Ecology didn't always receive the same reception among legislators and the public as it once had when they were leading the Department of Game.


Hunter

Wes Hunter: "I want to say it straight. I had worked at least 20 years with and for John Biggs before he brought me to Ecology from the Game Department. Evans picked Biggs because he thought he was the best person to do it. Biggs was one of the few directors who could take over an agency and do an excellent job. The Game Department he headed was one of the leading game departments in the United States. Evans had a lot of respect for his ability, or he would have not picked him because Biggs was a Democrat. A lot of agency directors are political appointments. Well, they don't know their fanny from third base on the agency they're taking over, but John, he was extremely intelligent, and good with legislators, and he let his staff do things. I can't tell you how he and I did it. Sometimes we got along, and sometimes we'd have a fight. He fired me five times, and I quit another four. But usually we got along, and he trusted my judgment. But once he decided to do something, he was going to do it. One thing about it, he was boss.

I'll be honest with you, Biggs wasn't what you'd call a 'bare-footed environmentalist.' We were interested in the sports and hunting and fishing world, but when we started with the Department of Ecology, I guess he decided he better have somebody he knew.

I'd been working for him as deputy director for the Game Department for years, and so I guess he felt confident having me there to do things for him. It was extremely interesting to bring those agencies together to form Ecology. In the first place, everybody thought, well, this is just a usual legislative bill—everybody comes down, has a meeting, and they go back to their own place and run the agency just like they'd done before. Well, they were in for a shock because Biggs had different ideas and different ways of thinking. Most of the heads of those agencies were political appointees. They were all going to stay, and so the first thing to do was to organize these different groups together. It wasn't easy. I don't think they liked each other. Every time you get an agency to merge jurisdiction and responsibility with another, it's not popular.

Web Hallauer, Second Director 1977-80.

Also, I don't think the legislators knew what they had passed. I mean, there were a few of the legislators who knew what was in those bills, but the majority of them had no idea what was there. They were passing environmental legislation that was very controversial to a lot of people. I had come from an agency that was pretty popular. One of the reasons John took me, I think, is because I did the legislative work for the Game Department, so he figured I'd just take it over for the Department of Ecology. There was a big difference between Ecology and the Game Department when it came to the Legislature, and after it was well started that I had some troubling times. I never felt that we had the legislative support I ever had in the Game Department, none whatsoever. We didn't have any really strong legislators on our side. I'll have to be honest about that. Let's put it this way, toleration was the best you could probably expect in many cases. I had a good relationship with the Legislature at the Game Department, thank God, because it was tough getting started in Ecology. I hoofed it around for a while, but it was tough."

Emily Ray was working as a public information officer for the Superintendent of Public Instruction when she was hired by Ats Kiuchi in 1974 to join the agency as his assistant public information officer. At the time, Ray was 33. She had earned a bachelor's degree and was a single mother of two, balancing the responsibilities of work with the responsibility of caring for her children. Within the first year and a half of being at the agency, she received two promotions. By 1981, she found herself in a managerial position, one of the few women whose work was not in a clerical or support role within a new agency dominated by engineers and chemists.

Ray

Emily Ray: "The first thing Ats asked me to do was to write the agency's annual report to the Legislature. I'd been with Ecology about three weeks. What a marvelous introduction that was. I had to get all the facts and figures to write a report that was similar to ones done in prior years. We didn't have computer databases. Instead people kept hand counts—how many water rights, how many shoreline permits. I didn't know a soul, but by the end of preparing that report I knew most everybody in the agency, and I had compiled all kinds of information. I was convinced that one of the challenges of this agency was to have

information in ready, available form because these questions do come up on a regular basis, and it was incredibly hard sometimes to get what should be routine information.

I always thought that when you serve the public, you really serve many publics. So part of the conundrum was always, which public are you serving at what point? You have to have as much knowledge as you can of the different publics and their desires as they're represented in law, and you have to be accountable all the time. I have huge frustration about the accountability piece because people didn't always understand. So, this was another reason it was important to document what we were doing, what it cost, how long it took. That way, employees wouldn't think of what they were working on as their private reserve. I always felt that people should leave their desk everyday as if they were about to be hit by a meteor, so that somebody else could come in and take care of all their work right away and follow it through. But often it wasn't that way—somebody's private project may have been jealously guarded. I think part of their keeping those details to themselves was so that someone else couldn't know, so they could always be the most important lead person.

When I came to Ecology it was more staffed with engineers and hydrologists—scientific types—and there was a real need for people who could write and talk and communicate with the public. I was only here about six months, working for Ats, when Phil Clark, who was head of Water Resources and whom I had come to know in some committee, stuck his head in and said, come to work for me. My title with Water Resources was community affairs consultant. Community affairs consultants were hired to do public speaking, writing and communicating with the public. The Department of Personnel thought it was just too messy a category and they got rid of it, and later I became a planner. Not long after I worked for Water Resources, I was hired to work in the Shorelands Program, and that was another wonderful promotion because I went from essentially a planner I position to a planner III position. At that time, there weren't a lot of women in such positions; most women were still in clerical positions. It was exciting, but I always did feel a little like a duck out of water. Lunchtime would come, and the guys would go off to lunch together. I was rarely asked to go off to lunch with folks. In one situation I'd been there several months, and this new guy arrived. On his first day all the guys surrounded him, and I remember them going down the hall with their arms around him. So, I always felt a bit apart. I think there was discomfort in my being there. It was unusual to have a woman who was a peer, or thought she should be. Later that changed, I imagine. For a long time I would eat my sandwich for lunch at my desk, and then I would just go out for a walk or something. And finally my boss, Don Peterson, said, Emily, you have got to start socializing with people. I think being task-oriented helped me make those first quick promotional leaps, but at some point you have to get more political, and I really never did get as political as I should have, looking back. I always remained pretty much task-oriented.

Also, I had two children and daycare to pay for. It wasn't the time when women could seek special treatment. My commitment to my job was a matter of being professional. I never wanted to say to my boss, no, I can't make this trip, or, no I can't stay for this meeting. It was my job. It was up to me to manage my private life, and I did so. It did not intrude; however, my experience as a working mother did impact me when I became a supervisor because I realized the need for some flexibility on the job. In fact, I am very proud of the fact that I set up the first professional position that was held by two women

who shared an Environmentalist III position in shoreline planning. I had to get the approval for it, of course, and there had to be retirement and health benefits that went with it. So, there was a small economic impact, not big, but there was a small one. It turned out to be a wonderful situation because of their personal sense of responsibility and their skills. They were willing to keep files and share the same desk. Anything that they were reviewing, all the papers, were there. They both were good at documenting and each of them could pick up where the other left off. Later, it became far more common to share a position or have flex-time. I'm proud to have played a part in creating that."

Carrie Berry came to the agency in 1971 after leaving her job with the Department of Social and Health Services' Welfare Office. Then 22 years old and a new mother with a six-month-old baby, she was still somewhat ambivalent about working full-time, but felt it was financially necessary. She joined the agency at the clerical level, finding herself at work at the bustling Abbott Raphael Hall as other departments and employees were being relocated there as well.

Berry

Carrie Berry: "My friend was leaving Ecology, and she told me about her job being open. And so I applied for it, competed, and got the job. I didn't know at the time that I was starting a career with Ecology. I was still thinking I was going to be a stay-at-home mom at some point, but it wasn't really working out that way. It was a time when there were still a lot of people that didn't really think too much of mothers who worked full-time. My husband and I were trying to get to a point where we could financially make it, so that I could do that, but it just wasn't really happening very fast. Also, it wasn't a time when you had part-time options or flex-time or any of those kinds of things available. Boeing was down and there were a lot of people looking for work. At that point, I felt kind of lucky to have the job, even though clerical workers only made about $600 a month.

There were a few professional women in the agency, but most were clerical or in a support role. I provided clerical support to about 10 people, mostly typing correspondences. We didn't have computers, but we did have copiers. Basically, each letter got individually typed. I didn't take dictation. There were only a few people who did that, and they worked for someone at the assistant director level as secretaries. At that time, I didn't know a lot about the agency, the significance of it being a new agency. I worked in the Water Quality area, and we were mostly focusing on wastewater treatment. That was the big issue that I remember about that time. I remember there was an Industrial Section. And then there was the Air Pollution Program, which, at that time, was mostly working on air pollution that had to do with industrial facilities. After I was there, they started with the Litter Control Program. But to me, at that time, it was just a job. Having a family was a big deal to me. I had no idea how difficult it was going to be to leave my six-month-old daughter with someone else and go to work. It was awful. I waited until the very last minute to actually line up day care. Looking back at it now, I can't believe that I did that. It was as if I'd been thinking it was problem that was going to go away or something.

Then Ecology came out with the Environmental Technician Series to train people for environmental tech-level positions, which included an introductory level and then five

levels at the higher end of it. Ecology was trying to make a bridge for people to go from one specialty over to another. They had this meeting, and they started explaining it to everyone, but they only invited the men. They didn't invite any of the secretaries or even think that any of them would want to do that. There were a couple of vocal secretaries in one of our regional offices, and they made a big deal out of it. The next thing you know, we all got invitations. So that's how we found out about it. So, I went to the meeting. At that time, I had had a year and a half of college behind me. I remember thinking, 'Well, I can get a clerical job anywhere. While I'm here, I'm going to try for this.'

So, I went through the introductory series that first year. I was the first woman to go through it. They guys made fun of me at first because I was going into the lab, teasing me about having left my 'glamorous' job. The truth was, I just wanted to have the chance to do it because I thought I was smart, and I really wanted to be able to do something else. I don't think I was the best clerical person. There were a lot of things that I was really good at, but not in the clerical area. I would get a little bit bored with it, and, in some ways, I felt like I was somewhat trapped. I really didn't even know how to take shorthand. And that was about as high as I could go unless I was going to be a clerical supervisor. Actually, they didn't have any of those positions at Ecology. But, I liked working at Ecology. We had great hours. It was a very relaxed atmosphere. It was a nice, friendly place to work. And because I hadn't finished college, I saw the Environmental Tech Series as an opportunity for me to have a career that I could work at without having to completely quit and go back to school and start over. I wasn't in a position financially to do that. So, as I said, I took part in the series.

Of course, working in the lab at that introductory tech level, you get all the grunt work. You wash the glassware. You run some of the analyses, and then samples are coming from wastewater treatment facilities. It's not cool stuff. Also, there was a lot of leachate work, tests related to the closing of the landfills. Those were probably the worst. They had one thing that was called the 'routine monitoring,' where they would go out and they would have set up stations that they were going to monitor like for the whole year, mostly rivers and creeks. Sometimes they did marine water areas when the weather was nice. They could go out on the floatplane and get the samples. So, those weren't really too bad. But we also tested samples like cow manure—liquid cow manure. We would do suspended solids and total solids where we would take 100 milliliters of it and put it on a little dish and let it bake. So, you can imagine what that would smell like. And then they were always testing effluent from treatment facilities. So, we'd wear lab coats, and we had rubber gloves. We probably should have had some masks to wear sometimes, but we didn't. Ecology's lab is much more sophisticated now. They would be much more conscious of the chemicals coming into the lab now than they were then. Actually, I was pregnant with my second child at the time I was working in the lab, and the smells used to make me feel sick. It was not a great time. For the first few months, I didn't know if I could make it through the day. But, outside of the smells, which only really bothered me when I was pregnant, I actually liked working in the lab. I was kind of fascinated.

While I was working in the lab, I also was going to school at night. I finished out the Environmental Tech Series shortly before my second child was born. And so that's when I got my associate's degree. It ended up being an associate of arts, but for the last

part of it, I was focused more on the sciences—oceanography, chemistry and those things. Those were the kind of subjects I had taken in high school and enjoyed, but I had no idea what I was going to do when I graduated. Absolutely none. My mom thought I should get a job as a secretary and be married. I actually did end up doing that, but not necessarily because I had made that a goal or a plan. But after I got into the Environmental Tech Series and people realized that I wasn't going to faint away or die from the smells in the lab, other women became interested in the Environmental Tech Series as well. And some of them worked in the lab. And some of them worked in the fields, taking the samples. Those were the tech jobs available at that time. You know, I really thought that I would just be a mom, staying at home, and that would be very fulfilling to me. I was disappointed for a long time that that didn't happen. But once I got into my career, I really liked it because it was something for me. And I don't think I had confidence in myself to ever get up and speak in front of a group and do things of that nature. I would rather have the flu than do that. It was hard to overcome those things, but the Environmental Tech Series allowed me to do it piece by piece."

In the summer of 1968, Bob Monn put all his worldly belongings into the back of his Chevy Impala and set out for Olympia. He had found himself at the end of graduate school with a degree in civil engineering followed by a master's degree in urban and regional planning. Although he'd been to Europe and up and down the East Coast, from Canada to Florida, he hadn't yet traveled west of Ohio.

Monn

Bob Monn: "I was most interested in San Francisco. After all, it was the late '60s, and San Francisco seemed to be the center of the universe. I wanted to be a part of that, when I did my job search, the position I was offered in Olympia provided better immediate experience than the one in San Francisco. So I took that job, working as a highway planner for the Department of Highways, a predecessor agency to the Department of Transportation. After about three years there, I began looking around for some other employment opportunities because I felt like I was a little bit stuck at Highways. The work was actually very interesting, but the Department of Highways was essentially an engineering organization, as is the Department of Transportation is today. In order for me to advance beyond where I was, I needed to have my professional engineers registration, and I didn't yet have enough job experience that would qualify me to take the exam, and so, at least for some period of time, I was stuck in the classification that I was in, but I was still interested in growing professionally. So I had the opportunity to take a promotion out to Ecology, and get into a planning position. I've always been interested in the environment generally, and, of course, Ecology was brand new at that point. It had only been in existence for about a year on paper. It was only in the summer of '71 that Ecology had physically come together as an agency after being created in 1970 as a consolidation or parts of a number of other agencies. It took a year to get those pieces physically put together, and I joined about three months after that occurred.

I was hired as part of the staffing up that was occurring to implement the Water Resources Act of 1971, which was a milestone piece of legislation for the Water Resources Program. I came into the Water Resources Program in 1971 as a planner. I spent eight years in the Water Resources Program doing a wide variety of things, mostly

in the policy and planning area. I then moved into the Water Quality Program as a section manager in 1979 and spent about 12 years in the program. Again, the bulk of my work was in policy and planning activities. For the last six months I was the acting program manager. Then, in early '91, I moved to Information Services as an IS manager. What is most significant about that is that I don't have a formal computer science or information technology background. I came out of the environmental side of the agency and moved into IS management. I believe the major reason that I got that position was to help bridge what had become a very wide gap between the environmental side of the agency and the central IS organization.

After Ecology was created, it took quite some time to really break down some of the barriers between the predecessor organizations; the Water Pollution Control folks still saw themselves as Water Pollution Control folks, and the Air Pollution Control folks still saw themselves as Air Pollution Control folks, and the old Department of Water Resources still had those bonds. When I joined Ecology, they had, at that time, around 250 people, and Department of Highways was in the thousands—5,000 or 6,000 people. Highways was a large engineering organization, very regimented, very disciplined. Ecology offered a lot more freedom and opportunity for individual impact. It was a brand new agency in many respects with a lot of new programs to develop and implement. So, it was a very exciting time. Things since have flowed in terms of the emergence and disappearance and recasting of various programs. A lot of these issues just don't go away. Most require persistent attention. I think the Department of Ecology is going to be around for a long, long time."

For Joy Misako St. Germain, who arrived in Washington state in 1989, the Department of Ecology was a calling she couldn't resist. Initially she was employed by the state Board of Health to work on their first State Health Report. The Department of Ecology was one of the state agencies she contacted to get data and information for the report's chapter on the environment. Shortly thereafter, she was hired by Ecology to work on a special project for then Director Christine Gregoire on the subject of economic incentives and environmental policymaking and later served the agency in planning and managerial positions. She was appointed Director of Employee Services in 1994.

St. Germain

St. Germain: "I became so attracted to the Department of Ecology for its mission, and the people and even the location of the building, which was at that time, Abbott Raphael Hall, along the woods with deer walking around. Working in the human resource field, the culture of Ecology is something that I have really thought about, and it's something I care about. What you'll find at Ecology are people who sincerely care about the environment, people who really want to serve the public and want to connect with the citizens and serve the community. This work really is a public service. I've never met a harder working group of people in my whole life than I have in state government. That's the total opposite of the perception that the general public has about state government workers. You hear all the stereotypes, but I really think the people that come to work for Ecology are people who really care about wanting to make a difference for the common good and feel as though government is where that can happen. That ethic and value goes back to the founding of this country, the U.S. Constitution and the role of government. The concept of democracy is about community. I think about communities where citizens feel a deep responsibility to help shape and maintain a quality of life and

health of the place where they live and work. It's that sense of responsibility and about wanting to get engaged, a sense of responsibility that goes beyond just voting. I think that the government has a very unique role in that regard, to find ways to connect citizens with their government and their communities, to find opportunities for people to collaborate on problem solving and conflict resolution. I'm concerned about the anti-government sentiment and negative feelings I see from citizens, who regularly depend on government services.

Administering a program for the public and trying to solve the problems that government faces is very different from work done in the other sectors, private, non-profit, non-governmental. The nature of government goals are different because, for example, there are so many different constituencies that a government entity needs to pay attention to, and work to get these diverse interests to a decision-making table. It's different from meeting the expectations of a board of directors, not meaning any disrespect to other work, but I really feel that the challenges of working for government are amazing. It's very difficult to try to be consistent and look out for the good of everyone, and to create meaningful ways to have a dialogue between citizens and those of us that work at the Department of Ecology. Whether you are developing a rule or implementing a program that the Legislature passed, you have to pay attention to everyone, what everyone is saying, what the business community is saying, tribes, citizens, special interest groups. Then you have to take all of that in and use your best judgment in making decisions, as well as try to facilitate the collaborative discussion to come up with something that everyone can live with, while keeping that focus on serving the citizens in Washington in our role as stewards of our natural environment, and really stick to that. That's a very hard thing to do because we will be the recipient of the pushing and pulling, anger and frustration that can come with that significant responsibility we have as public servants. That's both the challenge and satisfaction of the work and the part that can really wear you down because it's very trying to be attacked when you're thinking, 'I'm really doing my very best for you.' The most disturbing thing in recent history for state government is the lack of public trust in government. I think we, as Washington state government, have recognized that and are trying to find ways to address that. It goes back to finding ways to connect more with our communities, and recognizing that with every single interaction we have, we can make a difference."

i Norman H. Clark and Susan McKeehan, Interviewers. James M. Dolliver: An Oral History. (Washington: Washington State Oral History Program, 1999), 36.

ii ibid

iii This quotation, and those in this chapter that follow, are taken from the edited oral history interviews conducted for the purpose of this book in 2004 and 2005 by Maria McLeod, Oral Historian, and/or Marvin Vialle, volunteer interviewer and the first individual employed by the agency upon its formation in 1970.

Chapter Two - The Rebirth of Commencement Bay

Once known as one of the most contaminated harbors in America, Tacoma's Commencement Bay, in Puget Sound, has experienced an environmental rebirth 35 years in the making. Industry and businesses located along Commencement Bay's waterways, as well as upriver, began their historic practice of discharging hazardous and toxic wastes into the surrounding air, water and soil long before scientific knowledge would grasp the environmental ramifications of such practices and even longer before laws would be written to halt further contamination. In 1970, the newly formed Department of Ecology, in collaboration with other federal, state and citizen-led organizations, began the arduous task of unearthing pollutants and their sources, drafting and implementing regulations to suspend such practices and cleaning up accumulated contamination. In 1983, the 12 square miles of Commencement Bay nearshore/tideflats, which included more than 300 active businesses and 500 sources of industrial and nonindustrial discharges, was declared one of the highest priority national Superfund sites, triggering designated funding for extensive studies to define the extent and magnitude of the contamination sources. Interviewees for this chapter—a regulator, inspector, environmental activist and an EPA site manager—offer up individual accounts of taking on the monumental task of turning the tides on a history of pollution practices. With their work and the work of countless others, the "aroma of Tacoma" gave way to an environmental and cultural renaissance that has brought Commencement Bay out of the smog and into the light.

Chapter Advisors: Merley McCall, Supervisor, Pulp and Paper Unit, Solid Waste and Financial Assistance; Mike Blum, Unit Manager, Industrial Toxics Cleanup Program, Southwest Regional Office, Washington State Department of Ecology

Interviewer: Maria McLeod

Finding Waste in the Waterways

An interview with Dick Burkhalter
October 14, 2004


Burkhalter

Position held at time of interview:

Senior Engineer for Parametrix in Olympia, Washington, since 1996
(Employed by Ecology from 1970 to 1992)

Education:

- Master of Science in Sanitary Engineering, University of Washington, 1965
- Bachelor of Science in Civil Engineering, University of Washington, 1963

Maria McLeod: At what point in your career with the Department of Ecology did you begin to interact with the various industries operating at Commencement Bay in Tacoma, and what was your position with Ecology at the time?

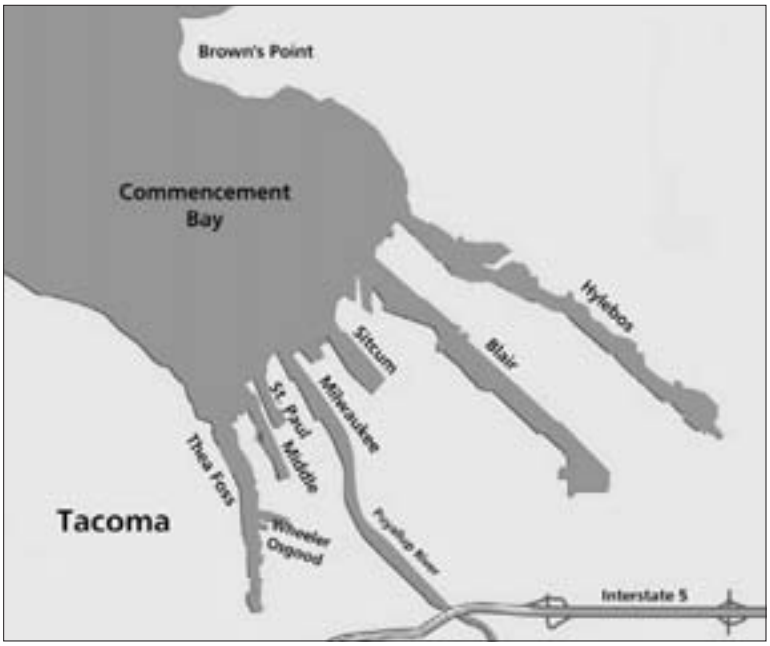
Dick Burkhalter: I became head of what was known as Ecology's Industrial Section in 1973, but prior to that, from 1970 to '73, I was already working in the Industrial Section. At that time, I was responsible for the major industries down in the Southwest Washington area, and Jim Knudson, who was also in the Industrial Section, was responsible for the major industries in the Commencement Bay area.

MM: How would you describe the Industrial Section and its function at that time, the early '70s?

DB: We were responsible for the major industries, those being pulp and paper mills, aluminum smelters and oil refineries. Prior to the formation of Ecology, under the air pollution laws, local air authorities could be formed to regulate industry in those areas. Some of the counties went together, along with the cities, to form those agencies, however the state of Washington could exempt major industries of statewide significance from local jurisdiction. The state took control over those major industries in order to provide uniform controls so one industry did not have an economic advantage over another. Also, the state wanted to prevent the industry from applying excess pressure on the local community to reduce the required pollution control efforts by saying they would have to shut down their facilities in order to comply. In fact, the state received a lot of pressure from the local communities and unions during public hearings to reduce the requirements so the facility would continue to be viable. But only in one case did an industry close because of the environmental requirement, and that was a small, antiquated sulfite mill owned by Scott Paper Company in Anacortes, Washington. So, the state decided that the kraft industry, which was one kind of pulp and paper mill, was a significant industry in Washington, and began developing air pollution regulations for that industry in the later '60s before Ecology was formed. Then work began on developing air regulations for the sulfite and the aluminum industry. The other industry they were considering were the oil refineries, which were more difficult because most of them, the four largest ones, were located under one air authority in the Northwest region. There were two very small oil refineries on Commencement Bay, U.S. Oil and Sound Refining. But the other reason why the Industrial section was formed was because Ecology was an integrated agency, taking a look at *all* the problems relating to the environment. It made sense to put those industries—pulp and paper, aluminum, and oil refineries—under the Industrial Section in order to look at the problems of air, water and solid waste. Before I became head of the Industrial Section, I had become responsible for those major four industries in the Southwest region of the state. That included Grays Harbor, Longview and the Camas area.

MM: How was, or how is, the Industrial Section different from Ecology's other programs. Take, for example, the Air Quality Program?

DB: In the Industrial Section, we were responsible for administrating the rules that Ecology developed. The Air Program, theoretically, was responsible for developing the state's rules and regulations for air pollution. Some of the folks who were working in the Industrial Section then actually developed or assisted in developing the regulations for the



Map of Commencement Bay waterways, Tacoma, Washington.

pulp and paper industry, specifically for the kraft mills and the sulfite mills and for the aluminum industry.

MM: We're going to be talking about these industries, as many of them were located on Commencement Bay, and some still are, but for readers who haven't been to that area of the state, or don't know the history of that area of Tacoma, Washington, could you give a description of it and talk about the significance of industry there?

DB: Commencement Bay is the terminus of the Puyallup River, which discharges into Puget Sound at Tacoma. It's located about the middle of Puget Sound, south of Seattle. Over the years, Commencement Bay was developed into a large industrial complex. All the tideflats in the area were basically filled up, and five different waterways were developed to accommodate shipping and waterborne activities.

MM: What were the main issues, as far as pollutants and contaminants going into Commencement Bay at that time, and what were the obvious and not so obvious forms that contamination took?

DB: Well, the main discharges from the pulp and paper industry located in Commencement Bay were the organic materials, which exerted a large biochemical oxygen demand, or BOD, on the water. Along with that, there were a lot of paper products, or suspended solids, that were actually fibers, materials from the pulping operation, that were also discharged into Commencement Bay from St. Regis Paper Company (Simpson Tacoma Kraft). As far as the aluminum industry was concerned, which, at Commencement Bay was Kaiser Aluminum Corporation, they discharged mainly fluorides and cyanide, and polyaromatic hydrocarbons in effluents from their operation.

MM: One term that gets used a lot when I talk to people from Ecology is "organic," in regard the organic materials that make up some of the pollutants found in the waterways.

For those who don't study environmental pollutants, when they hear the word "organic," they may think, Oh, that's OK, that's natural. When you mention organic materials and that those materials were increasing the biological oxygen demand, what materials are you talking about?

DB: In the pulp and paper industry, organic materials include the sugars that are extracted from the tree. The sugars are the binding material, including the resin in acids that actually hold the fibers together in the tree. The tree is probably made up of about 50 percent sugars and dissolved organic matter like resin acids, and the other 50 percent is the fiber. We test the strength of the organic material by running a biochemical oxygen demand test on it. For that, you put a certain amount of the material into a bottle, and you incubate it over a five-day period to see how much oxygen has been depleted out of the water. The same test is used for human wastes that are discharged to waters, increasing the BOD. The industry, in this particular case, could be putting out the equivalent of the untreated human waste of, say, 2 or 3 million people in one location.

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MM: When trees normally decay and run off into rivers, lakes and streams, that's all right; but in regard to organic wastes coming from the pulp and paper industry, you're saying that this is happening at such a dramatic rate that the water body can't handle the load?

DB: Yes, that's correct. In the pulping process, what you're doing is taking all these trees in, digesting them, and removing all the sugars that are in the pulp and, if left untreated, discharging those to the receiving water. If you discharge them directly without any treatment, then they exert a large biochemical oxygen demand, or BOD.

MM: Other marine life that need to survive in the water and require oxygen then die off, right?

DB: Right. Then, additionally, there are resins in the tree that also are toxic. As far as biological activity, if the toxicity is at a high enough concentration, it can kill organisms and fish. Also, the bleaching process, the chlorination, uses toxic chemicals to make the paper white.

To give you a little history, there are two main kinds of pulping processes, but one of the earliest processes was the sulfite industry. Then there was the kraft pulping. In the kraft process you have to recover some of the chemicals you used to cook in order to make it economically viable, but the sulfite industry didn't have to recover their chemicals because the ones they used were cheap. Therefore, they discharged everything out into the water. The kraft industry did recover some of the chemicals, and they discharged the rest. Back in the 1940s, this was a big issue that drew attention because of a situation in Grays Harbor, which is an estuary on the Pacific Ocean along the southern border of the Olympic Peninsula. There were two pulp mills discharging in that area, and as a result, there was no dissolved oxygen in the Chehalis River, which flows into Grays Harbor. This was especially troublesome in the fall period when the flows were low in the Chehalis, and the oxygen level actually dropped to zero. The fish would go belly up. The migrating fish were actually blocked from going up the river because there was no oxygen. Therefore, the fish couldn't

breathe and they died. Also, the industry didn't recover any of the organic solid materials. They lost fiber out their outfalls, which formed sludge beds out in front of their outfalls, which became dead zones. I mean, the sludge completely covered all the organisms, and it was anaerobic and produced hydrogen sulfide gases.

MM: So it stank?

DB: If the water left the top of it, it stank. But they were dead zones. In the 1960s, there was a conference between the state of Washington, the state of Oregon, and at that time, the Federal Water Pollution Control Administration, which was a predecessor agency to EPA. They held a conference because industry was fighting tooth and nail against putting in any type of controls, and they were always playing one against the other, saying, well, if this guy doesn't do it, then I can't do it because it isn't economically viable if I can't compete. So, the two states got together, along with the Federal Water Pollution Control Administration, and they had conferences on Puget Sound and the Columbia River. The result was that they required primary treatment as a minimum for everybody, and that would remove all the solids that were discharged. Then they also required secondary treatment for certain industries, especially all of those discharging to freshwater. The ones on saltwater, if they could show that they were not having an effect on the receiving water, would not have to put in what we'd call, biological secondary treatment. So, that rule went through, and then Ecology's predecessor agency, the Water Pollution Control Commission, started to write rules and regulations on the water side to try to enforce those, some of which were appealed to the Water Pollution Hearings Board.

MM: So that was in the early '60s, right, or late '60s?

DB: Through the '60s, put it that way.

MM: And, in their appeals, industry was saying, we don't want to add to our process or make changes?

DB: They were saying, we don't want to put any controls in. We're not harming anything. Around 1958, there was a big case where ITT Rayonier had a pulp mill in Shelton, and they were killing everything. The oyster growers took them to task, and there was a fight over that. The oyster growers finally ended up winning, but it was a long, arduous task. Eventually ITT shut their facility down, because it was in such a poor location and because of the pollution that was occurring.

MM: You mentioned that these industries, those that were discharging to freshwater, had to put in secondary treatment, which you said was biological treatment. Does that process add oxygen?

DB: Basically, secondary treatment is a biological treatment where you foster these select organisms, you might say, and put them in a tank and aerate it with water, and put the pulp waste into it to oxidize the organic material. In other words, it's a process of growing organisms that use oxygen to break down the sugars and reduce the organics to carbon dioxide and water.

MM: What were the nature of air pollutants and the liquid discharges found in Commencement Bay in the early '70s?

DB: Well, we talked about the paper industry, but in regard to the aluminum industry, there were fluorides being discharged, and cyanide from the process, and polyaromatic hydrocarbons. These were, I'd say, the main three, being discharged to both air and water. Then U.S. Oil, which was a small refinery, and still is not a very large refinery, was discharging mainly oil and grease and organic waste materials.

Then, on the air side, from the pulp mills, you had particulate matter and odorous sulfur compounds, which was H2S or hydrogen sulfide, malodorous gases that were being emitted. I remember when I was going to Washington University in the early '60s. I lived down in Southwest Washington, and I traveled back and forth to Tacoma, and there were a few times I came through in the fall when the fog was in, and there was an inversion, and traffic jams. You could gag a maggot. The odors were so bad it was unbelievable.

MM: How did it look?

DB: Well, if it was a clear day, you'd be able to see a very large plume of particulate material, and then you had the odorous gases there. If you had an inversion, it would settle down onto the ground. It became known as the "Aroma of Tacoma" because of what the pulp mills were emitting.

MM: Is there anything you can compare the smell to?

DB: Well, it's hydrogen sulfide.

MM: So, rotten eggs?

DB: Yes, rotten eggs would be a better description.

MM: Is there a negative environmental impact that results from releasing hydrogen sulfide into the air?

DB: From a health standpoint, if you've got hydrogen sulfide in the air to that extent, there are some health standards to be concerned about. But just from an aesthetics standpoint, it was terrible to live in that type of situation. It was something else.

MM: I imagine it would affect the economy, because who wants to live there when they were dealing with such stench on a daily basis.

DB: That was one of the issues, and I'm sure that's why Tacoma went downhill, you might say, because of the fact that odor came up and, depending on which way the wind was blowing, went right into the city and right up on the hillside there.

MM: So how would you describe the overall environmental impact of St. Regis Paper Company, later bought by Simpson to become Simpson Tacoma Kraft Mill? Prior to their eventual cleanup action at Commencement Bay, what were the outfalls and treatment oversights?

DB: When St. Regis had the mill, they wanted to show that they didn't have to put in secondary treatment, and so they did a study to prove they were not having a negative effect. We rejected that because they were having an effect. For one thing, they had big sludge beds, probably 3 to 4 acres, out around their outfall. They were discharging right

along the shore. There was no life, period, in front of their mill due to all the organic material and the suspended solids that were being discharged.

Then, on the air side, they were discharging a lot of particulate matter, which was mainly sodium sulfate, and these were the chemicals that they didn't recover, or didn't capture. As I mentioned before, the kraft mills had to recover the chemicals they were using to pulp the wood, otherwise it wasn't economical. So, the more economical process was to concentrate the sugars along with the chemicals, and then burn them in the recovery boiler so they got heat out of it, plus the chemicals. Well, as industry expanded its capabilities, they didn't improve their recovery system. So some of the boilers were run at twice the design capability. Therefore, they were putting out a lot of particulate material as well as a lot of odors. The odors came from both the recovery furnace and from the evaporators that concentrate the liquors, and then also the odors came from the digesters.

MM: How did you learn about the toxicity of the discharges?

DB: Before I joined Washington state Water Pollution Control Commission, one of Ecology's predecessor agencies, I was up in Canada for a couple of years, working with the International Pacific Salmon Fisheries Commission. At that time, I was doing stream surveys to determine the condition of the river prior to the proposed pulp mills, which were to go in along the Fraser River. Tests also were done to determine what kind of wastewater treatment had to be put in to protect the salmon runs. We ran short-term bioassays, and we also ran long-term bioassays, where we incubated the eggs in the pulp mill waste at different concentrations, both treated and untreated. The untreated pulp mill waste showed that it was pretty devastating, whereas the treated pulp mill waste showed that secondary treatment took care of the problem and that one could reduce the toxicity to an acceptable level and discharge it into the river. We did a long-term study that showed that without adding secondary treatment, the spines of the fish curled up and they were deformed. So then, when I went to work for the Water Pollution Control Commission, I introduced the test procedures to the commission.

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MM: And so, when St. Regis was doing their own testing, proving they didn't create a negative effect and that they didn't have to put in secondary treatment, weren't they conducting bioassay testing?

DB: No, what they were trying to do was to show that the environment around their outfall was not being affected or that the receiving waters out over a certain distance were fine.

MM: And so, did you do show contradictory results where you said, OK, here's our bioassay?

DB: We reviewed their tests and we disagreed with what their conclusions were. At that time, they were going to put in primary treatment, which they actually did, but they were objecting to putting in secondary treatment. It was kind of a tough situation, and they fought it because of the cost. Anything that related to the cost, the industry was not receptive to, put it that way. That's why you have laws and regulations. At that time, a lot of the people at the mill whom we had a working-level relationship with understood what was going on. They had to represent the company, but as far as working with them, we had a reasonably good working relationship. Each industry had its own philosophy. Some give you a hard time, but when they decided to give in and do what was required, they'd go out and do it. There were others who said, hey, we'll go ahead and do it, and they never ended up doing it. So there were different philosophies within each one of the groups.

MM: What were the difficult moments?

DB: Well, I met a number of times with some of the industries, and the director of the Department of Ecology, John Biggs, after which I had to tell John that these guys were pulling his leg. In those situations the information wasn't coming from the guy that we'd worked with day to day. More often, it would be the manager, or somebody out of corporate office who was pushing the line that the industry wanted pushed.

MM: How did John Biggs respond to you?

DB: Well, he went along with us. Still, you've got to be diplomatic about it when you're telling someone, no, this is the way it's going to be, and he was good at that. We also went over to the Hearings Board and testified when they fought the issues.

MM: What can you tell me about regulating Kaiser Aluminum Smelter, located between the Hylebos Creek Waterway and the Blair Waterway?

DB: The big issue with Kaiser Aluminum was going from a wet scrubber system that removed the fluorides out of their stacks and discharged it to the receiving waters, to a dry process that recovered the fluorides. The problem is that if you discharge enough fluorides into the air, it can cause fluorosis to cattle. Fluoride is very water soluble, and it ends up in vegetation. It can kill vegetation, and it did harm some of the vegetation, but it also got into the grass, and the cattle ate it, which caused fluorosis. Their teeth starting falling out, and they had a hard time eating. Also, it caused deposits, calcification, in their joints, which actually crippled the cattle, and they had a heck of a time moving around.

So, they put in scrubber systems to remove the fluorides that were being emitted out the stack, and then we had to go after them because then they were discharging it all into the receiving water. We wanted them to do a better job of recovering both the fluorides as well as particulate matter that was being discharged. The aluminum industry invented the dry scrubber system.

MM: In terms of Commencement Bay, what were the major emission sources and sources of toxic wastes that weren't regulated by the Industrial Section or Ecology?

DB: The biggest other air pollution problem in the Tacoma area was the copper smelter, Asarco, which is located to the north, near the Point Defiance area. They put out probably more sulfur dioxide then all the other industries in the state of Washington put together.

MM: If Asarco, the copper smelter, was an industry that the Department of Ecology didn't regulate, does that mean it was regulated by the local air authority, the Puget Sound Clean Air Authority?

DB: Yes, they regulated it, but it was a very old industry, built probably in the late 1800s. It's one of those issues, either you put it out of business or you don't, because of the cost of controls to make it meet regulations would have shut them down.

MM: But Asarco eventually did close, didn't it?

DB: Yes, they closed their facility in 1985. It would have cost them a lot of money to install air controls on an old facility. Since they closed down, it has cost them a lot of money to clean up the contamination at the facility and surrounding community. It's now a Superfund site, and EPA is regulating that.

MM: What other industries were located in Tacoma that contributed to the pollution of Commencement Bay, besides Asarco?

DB: Well, there were a couple of chlorine plants that produced chlorine gas and caustic, Hooker Chemical and Reichhold Chemical, and there are a couple others. Then, there was some animal rendering facilities there, which put out grease and oil and BOD, and they had odors, rotten egg odors. Then, in the Port of Tacoma area, there were some sawmills down there. There was shipbuilding with painting activities, repair ships, peeling off the paint and letting it discharge right into the water. There were all kinds of old industries.

MM: Are the chemicals from these dischargers what ended up as sediments in the bottom of the bay? Is that what causes the toxicity?

DB: They build up in the bay, and they can be toxic when you get a high enough concentration. For example, the area where St. Regis Kraft Mill was discharging into the bay—in the time when they didn't remove all their solids—those were discharged to a location that wasn't very well disbursed.

When I first worked with Ecology, there was another Simpson facility over at Shelton, where they were making ground wood, constructing wood panels that you see in ceilings, essentially fiber panels, which they were selling in Hawaii where there's a fungus problem because of moisture content. So, the Simpson facility was using pentachlorophenol, a wood preservative that is now banned, in the paper machine to form the board. The process involves making a slush out of wood fiber. So, you've got, let's say, 3 or 4 percent product and the rest is water, and you run the water mixture over a screen to form the fiberboard. That water was discharged to the bay. The screened fiberboard then went into the dryer to dry the fiberboard. They were painting them as they came out of the dryer, but they were using pentachlorophenol on the wet end of the process, when the fiberboard was being formed. So, all this pentachlorophenol was being discharged to the receiving water. I had a bioassay run on it, and at a concentration of less than a quarter of a percent of the water, or maybe less than that, it killed all the fish in the solution. So I went and I talked to them, and I said, "You're going to have to take care of this problem." I suggested they add the preservative at the dry end and spray it on like they did the paint. So they finally did that. Well, a year or so after Simpson had made those changes, Mr. Taylor of Taylor United—this big shellfish operation in Shelton—came to my office, and he said, I don't know what you

guys did over there, but now I'm getting the best returns. I've got a good survival rate of oysters, and my clam beds are just great. Well, I put two and two together, and I realized that what they had been discharging was just completely wiping out that bay over there. It's anecdotal evidence, but as far as I'm concerned, that's probably what was the big cause.

MM: Related to that, what can you tell me about dilution zones and how those work in terms of discharging to the bay?

DB: According to the water laws we have now, industry has to treat the waste prior to discharging it to the receiving waters. Then they can discharge their treated wastewater into the receiving water. If the treated water does not met the water-quality standards, then they are allowed a dilution zone. At the edge of the dilution zone, the water-quality standards are required to be met. The dilution zone is limited in size for each discharge. The idea behind the dilution zone was to make it as small as possible. Another issue was that they couldn't block migration of fish. We also looked at the fact that we didn't want one industry to dominate and use up all the water for their dilution. We wanted to parcel that out. So, we established the rule that they could use only an X amount of the water, like 25 percent of the stream flow, for their dilution. We wanted to encourage them to put their discharge out into deeper water, which also protected other uses that occurred along the shoreline, such as swimming and so forth.

MM: It sounds as if you were doing groundbreaking work that other people had not done before you. How did you decide on your guidelines and your standards?

DB: The fact was, these were things we wanted to accomplish. I had taken courses in college on methods for disbursing waste. From that knowledge, I looked at the water body and thought about how we wanted to protect these resources. For example, how do you best protect resources within a river so that they aren't damaged? There also were provisions in the federal rules and the state rules of nondegradation; so, I developed the guidelines for that. That's since been changed, but there was a lot of initial work I was very fortunate to be involved in.

MM: How did your work change with the 1980 passage of the federal Superfund law, also known as Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the 1988 passage of the state Model Toxics Control Act (MTCA)?

DB: Well, those laws basically came into effect to clean up deposits of materials, either on land or in the water.

MM: So, that didn't affect your regulatory mission so much?

DB: Well, it affected our regulations. Our regulations on the water side and air side also took care of the future deposits of those materials, but then you had the existing deposits of those materials, and we used the MTCA and CERCLA laws to go in and clean up Commencement Bay. In Simpson's case, when they bought the facility, they were more progressive than the other two previous owners, International Paper and St. Regis. International Paper only had the mill for two years, and then they had to sell it because of monopoly laws, so Simpson bought it. At that time, a study was being performed in Commencement Bay, showing that it was going to be a Superfund site, and Simpson wanted to take care of their problem up front. International Paper was going to pay for part of it

because of the agreement they had between the two parties, so they wanted to clean it up as soon as they could because, after they cleaned up it, Simpson then became responsible for anything that occurred after that particular day. So, Simpson approached us about putting together a cleanup program, and we said, great, it needs to be cleaned up. We were pushing to address the issue of the outfall, which was where these sediment beds, maybe as much as 4 acres, had formed. So, I was responsible for this activity, and we put together a process under MTCA to come up with what should be in the consent agreement with Simpson on the cleanup of Commencement Bay. Simpson did an investigation and reported on all the issues out there, and proposed what they wanted to do, coming up with five or six different plans. Their questions were: Should we dredge it out and move it upland? Should we just leave it there, move our outfall and make more of a wetland area out of it? Or should we put a cap on it? That was the final resolution, a cap, to fill it up, making an intertidal land zone, or wetland area. To do that, they covered that area up with a minimum of 3 feet of material. That measurement, 3 feet, was determined to be the amount of cover the plant roots and animals living in the area required if we wanted to keep them from getting involved in the dead zone. They worked very closely with the environmental groups that were interested in the situation, and they worked very well with the Indian tribes. EPA was at the table, and they agreed somewhat to what we were doing, but they would never sign off on it, because they hadn't completed their remedial investigation feasibility study. So, under the consent agreement we did under MTCA, which EPA didn't sign off on, the company went out there and cleaned the place up. For Simpson, it was basically a voluntary cleanup, and they did a nice job. It was actually the first cleanup that occurred in the state of Washington under MTCA. It may have been the first Superfund site cleanup in the nation for the EPA.

For Simpson, it was basically a voluntary cleanup, and they did a nice job. It was actually the first cleanup that occurred in the state of Washington under MTCA. It may have been the first Superfund site cleanup in the nation for the EPA.

MM: So, EPA only had a hand in the cleanup more toward the end of the process?

DB: Yeah, and there's an anecdote about that situation, which is that, although EPA was somewhat involved, they would not legally sign off on what the remediation was, because they said, at that time, they had not completed all their studies in Commencement Bay under the CERCLA Act. So, two years later they came back and reached an agreement with Simpson on the cleanup we did, and they charged them $1 million or $2 million for administrative costs, adding some more sampling locations and things of that nature. Then there was a big news conference that they had cleaned up this part of Commencement Bay, which had already been done by us two years earlier or better.

MM: Were there any other states at that time, tackling similar cleanups under their version of Washington's Model Toxics Control Act?

DB: Not that I'm aware of.

MM: So, you guys were really leading the charge.

DB: Actually, yes. We were out in front. We were out in front also on the air regulations, such as sulfite regulations, aluminum regulations and the kraft mill regulations. We also were somewhat out in front on the water side. You asked a question about the Water Pollution Control Act. We were implementing the water treatment requirement I previously mentioned. Then EPA came out with their effluent standards that also represented secondary treatment for municipalities and industries that were being put in anyway, by industry.

MM: So, you're referring to the relationship between the 1945 Water Pollution Control Act and Ecology's regulatory mission at Commencement Bay?

DB: Yes, in 1945 the State Wastewater Discharge Permit was put together. That law came about in regard to the pollution that was occurring in Grays Harbor with the dead zone I mentioned earlier, which was when the state decided to take action. As a result, one of the things that the industry did to take care of that particular problem was that they ended up taking out their cooking liquor and storing it. They built big lagoons to contain it during the summer period. Then they would discharge it on the outgoing tide in the wintertime when there was a lot more flow and therefore didn't cause the water-quality problem that occurred in the drier summer period. That was the remediation that was taken at that time, after the 1945 act. The industry still didn't have recovery systems, or secondary treatment or primary treatment installed.

What's interesting is when the first permits were issued, they were only one to two pages long. The Permit said, for example, the required pH shall be at a certain level, and it listed that requirement. So, whatever happened to be the pollutant or the discharge, the permit stated that they'd have to meet these requirements. Then, as far as the pulp mill went, those pollution control conferences were held, requiring pulp mills to install primary and secondary treatment. After that, in '72, the Water Pollution Control laws were passed by the feds. The predecessor to those laws was the Federal 1899 Rivers and Harbors Act for navigation, which stated that you couldn't discharge suspended material into the receiving waters. It was never enforced, but that was to protect the rivers and harbors from filling up.

One of the last refineries was built by Arco in the early '70s and located in Anacortes, Washington. It actually ended up with a Corps of Engineers permit because the feds came in and started enforcing that law. Two or three years later, the feds came out with their NPDES permit program (National Pollution Discharge Elimination System).

MM: Which came out as a result of the 1972 Federal Clean Water Act?

DB: Yeah. And basically, from that they developed, and are continuing to develop, effluent criteria for different industrial categories. So, that put more teeth into the law we already had.

MM: And that's a federal permit, which Ecology administers. Is that how it works?

DB: What happens is that states can take over the NPDES program if they can develop a program that shows the EPA they are capable of administering it.

MM: How does the NPDES permit function in relation to other water laws?

DB: The Water Pollution Control law that the state of Washington had back in 1945 was what we called "AKART, All Known Available and Reasonable Treatment." The industries and municipalities as well as anybody else were required to put in all known available and reasonable methods of treatment—the operative word there, obviously, is reasonable. The discharge that you have may not have any effect on the particular water quality, in that particular stream. If you have an effect by that particular industry on that particular stream, degrading the water quality to a level that we needed to take action, then the industry would be required to put in additional treatment, or better treatment, or go beyond the extraordinary, or move his facility. The goal in the NPDES permit program is zero discharge. Well, I don't think that's practical or reasonable, and yeah, you can get to the zero discharge. You can evaporate all the water, basically, but think of the secondary pollution that's occurring to produce enough energy to evaporate the water. That's a means of shifting the pollution around to other media, and that's not good either.

MM: How do you think your perspective differs from a person who has only worked within one program, and typically from the perspective of one media—in Ecology's Air Program, for example—versus to your having worked for the agency's Industrial Section, with a cross-media perspective on environmental issues as related to specific industries? How does considering air, water and soil, as opposed to focusing on only one of those, affect your perspective?

DB: I think you get a better appreciation being in the Industrial Section for all the different pushes and shoves. You look at pollution as a big rubber ball.

MM: What do you mean?

DB: Well, industry is a big rubber ball, and if you push in here to take care of the water problems, it's going to come out there as air or a solid waste problem. So, you have to take a look at each one of those issues in regard to how it affects the other, because you can't get 100 percent clean. I think you can strive for it, but I don't know if you ever get there. As technology changes, it probably will get there, but it's going to take time, like anything else.

MM: And how would you rate industry's progress at this time, in terms of the before and after, especially in regard to the work you did with pulp and paper?

DB: We've shown, through the bioassays and other tests, that with the treatment systems they have put in, industry is doing a heck of a job. The dioxin issue showed up as a cumulative type of compound that was being discharged and that could have long-term effects as a carcinogen. So, the industry took a look at it, did a lot of research, put a lot of money and effort into it, and found that the use of the bleaching compound, hypochlorite, was causing the problem. Also, free chlorine causes this problem. They also were using a surfactant, used oil, and it was causing a problem by producing dioxin. So they eliminated all these things, and they've removed 90 percent or more of the problem. So they've done a good job in going back and taking a look at the process, and changing and eliminating the constituents that were causing the problem.

MM: I understand you worked in Ecology's Industrial Section until '92, and since that time, you've been working for Parametrix, a consulting firm, which assists industries in complying with and meeting these regulations. I'm curious, how would you describe the

cultural change, in response to environmental regulations, from the later '60s to now, 2005?

DB: Industry, in general, is now trying to show environmental sensitivity. They want to be good stewards of the environment, where, in the past, I don't think that was the case. Back in the early '60s and '70s, we heard responses more along the line of, I'm out of money, and that would be their excuse not to meet the regulations. Now it's part of their culture to be good environmental stewards. Yeah, there are certain industries that still resist, or they'll argue about certain things that don't make sense, and there are always arguments on both sides of that fence. You continue to move down the road, you might say. But I think there's been a cultural change, definitely, on the part of industry itself.

Industry, in general, is now trying to show environmental sensitivity. They want to be good stewards of the environment, where, in the past, I don't think that was the case.

MM: How do you imagine, or how would you describe, even from where you sit now as a consultant, the industrial response to environmental regulators like Ecology, as compared to the early years when they were resisting and appealing, and they were taking issues to court?

DB: I still think that they will argue on certain issues that they don't think are productive for the environment. There are certain things that are the same. On the other hand, the era when I was with the Industrial Section was one of massive pollution. I mean, you couldn't see across the valley. The air, everything was being affected. Now it's kind of hard to show that some of these waters are actually being affected by industry, per se. To me, the current problem is more about population, nonpoint sources that are causing more issues than the direct discharges from industry.

MM: When you say nonpoint sources, you're referring to pollution that comes from, as an example, driving our cars, where our oil or what have you, hits the pavement and that eventually runs off into a waterway—those kinds of sources?

DB: Yeah. We are paving over the place, and we talk about wanting greenbelts, but what the heck are we doing? All these areas that were farmlands on the west side of the state are being covered by warehouses, so these areas are lost forever for production of agricultural lands. It would have been nice if all that land had been preserved for farmland, with houses and warehouses built up on the hills. Then you'd have your greenbelts, you'd have your green valleys, but that's not occurring as the population expands. The economy is based on expansion—it always has been. The philosophy is that you've got to keep expanding. You can only expand the economy by increasing the population.

MM: At some point, it will collapse in on itself. Do you think?

DB: Yeah, eventually. When, I don't know—500 years, 1,000 years? I don't know. China, for example, has wiped out most of their forestland. And take a look at Europe. That used to be a lot of forestland, and now there's hardly any forest left.

MM: What do you think were your greatest challenges and your successes in terms of working with Ecology and the work all of you did on Commencement Bay?

DB: The biggest success was the fact that we did eventually clean up the Simpson facility when I was there. We also cleaned up what Kaiser Aluminum was putting out, and what U.S. Oil was putting out. We did a reasonably good job of taking care of those issues. Now, it's very seldom that you can smell the Simpson facility. From an air pollution standpoint, their discharge has been pretty well cleaned up, and they meet the bioassay. Today's issues are minute issues that are being taken care of, but they're much more difficult than what we were dealing with. We were dealing with the big apple carts. There was pollution. There was no question. You could measure it really easily.

MM: Was there ever any kind of joining of forces between the millworkers and Ecology, assuming that those workers might have wanted certain environmental protections for their own health?

DB: The folks working for the environment on the industrial side recognized some of the problems that they were creating, and they were encouraged that our regulations required them to approach management on projects they wanted to clean up. It's an economics situation and the projects that were getting funded, probably internally, were on the production side, not the environmental side. So, by pushing the regulations, we increased the money flow into the environmental side.

MM: So are you saying that Ecology's work had a big impact on the way company budgets were allocated?

DB: We were affecting that budget tremendously. Some of the folks on the environmental side of the company may have wanted to put different, more environmentally sound projects in, but when it came to doling out the money, if it didn't have a return on investments, you were out of luck.

MM: What other factors besides enforcement and newly enacted federal and state laws led these major industries to make these major investments in their facilities?

DB: Well, if they wanted to expand their facility, then they had to go to the State Environmental Protection Act and go through the regulatory process. At that time, we would apply more restrictive standards, if we could, to empower the facility, if we felt that that was appropriate.

MM: How would you compare work that you did in the '70s to the work that you and others began on the cleanup of Commencement Bay in the early '80s?

DB: In the '70s, you were taking the big bolts out of water and air pollution because there had been no controls. Industry was just putting in a primary treatment, and they were fighting to not be required to put in secondary treatment for the pulp industry, and so that issue was taken care of. Then we got into the air quality control issues, replacing the recovery furnaces, and recovering cooking chemicals. The pulp mill problem was that they increased production without increasing the capacity of the rest of the plant, such as the recovery boilers. The boilers were designed for X amount, and later on they were running the boilers at 2X—200 percent of what the capacity of the furnace was—and the furnace was not completely oxidizing the liquor that was being burnt. So, the recovery system was not

functioning as designed. They had chemicals being discharged to the air and water. So, we were beating on them to take care of this major problem, and they did that. Then, in the '80s, we started refining down to smaller issues that the facilities needed to address.

MM: It sounds like your work in the '80s was focused more on maintenance than the work done in the '70s.

DB: If you want to call it maintenance. Basically, in the '70s, you had this old car, and rather than taking the motor apart, you could replace it with a new motor. The '80s tackled smaller issues, which we'd probably think of as major problems today.

MM: Since you left Ecology a decade ago, how has your work in the private sector given you insights or reconsideration of the role and impacts of Ecology as a regulatory agency, either then or now?

DB: From the outside, I can see now that when I was working with Ecology, heading the Industrial Section, I didn't realize how much power I really had over industry. They're at your whims. You're the regulator. You've got control over their permit, if you want to issue it or not issue it. You've got a lot of power. I hope I used it with discretion, or at least reasonably. I think I was classified as a hard regulator, but on the other hand, I also listened and understood the issues that they were trying to deal with, and I worked with them to get through those issues. Looking in from the outside now, I see that industries, 90 percent of them, want to do a good job, especially major industries, but there are the economic forces that are playing with them, and you've got to play those off. In regard to Commencement Bay, we did a heck of a job cleaning up, and we did it with a lot of cooperation. I think industry started to cooperate with us quite a bit, moving forward especially at the end, and their attitude changed over time, especially as the corporate people on the upper end started to act as environmental stewards.

Looking in from the outside now, I see that industries, 90 percent of them, want to do a good job, especially major industries, but there are the economic forces that are playing with them, and you've got to play those off. In regard to Commencement Bay, we did a heck of a job cleaning up, and we did it with a lot of cooperation.

The No. 1 Rule

An Interview with Jim Oberlander
October 21, 2004


Oberlander

Position held at time of interview:

Section Supervisor, Environmental Services, City of Tacoma Public Works, since 2000
(Employed by the Washington State Department of Ecology from 1973 - 2000)

Education:

- Associate of Arts, Everett Community College, 1972
- Bachelor of Arts in Business, Central Washington University, 1969

Maria McLeod: When you were with the Department of Ecology, you became Washington state's first hazardous waste inspector, inspecting industrial practices that impacted the environment in the Tacoma and the Commencement Bay area, which we'll be discussing shortly. I understand you've retired from Ecology, but that your current work is related to your previous employment. Can you describe what it is you're doing now?

Jim Oberlander: I am employed by the City of Tacoma Public Works Department, Environmental Services, and I'm the section supervisor for the surface water inspectors. Our main mission is compliance with state of Washington draft and NPDES storm water permit to protect the waters of Tacoma, Commencement Bay, and our local streams and lakes. In addition to that, I take part in an area focus on the Commencement Bay Thea Foss waterways and the associated Superfund cleanup.

MM: Where is the Thea Foss Waterway?

JO: It's the first waterway adjacent to downtown Tacoma.

MM: And that's a Superfund site?

JO: Actually, Commencement Bay is a Superfund site. Different waterways have different responsible parties, and for the Thea Foss, we, the City of Tacoma, stepped forward to be the lead. Other waterways, such as the Hylebos on the other side of Commencement Bay, is an EPA-driven cleanup, working with the industries

MM: What's the history of the Thea Foss waterway?

JO: When the city was first founded, the Thea Foss was known as City Waterway. At that time, there was a company developed out of Tacoma called Foss Launch and Tug, which actually began as a rowboat service, rowing people from Tacoma to Seattle. Sometime in the early '80s, the waterway was renamed in honor of Mrs. Foss. There's an interesting history of the area from an environmental perspective. That is, before Commencement Bay was developed and industrialized, the tideflats of Tacoma were once marsh and wetlands with many fingers, probably similar to the Nisqually Delta or the Skagit Delta, but over the years it was filled with garbage—a tremendous amount of wood waste and dredging soils

filled with auto fluff, sludges and other debris. So, the Puyallup River is channeled as it comes through the city, through the Port to the bay, and there's a huge delta. When you get to the edge of the delta, it's 600 feet deep. For years, it was common practice to take bargeloads of waste to the center of the bay and dump them.

MM: So waste was dumped along that 600-foot shelf?

JO: In deep water, yeah. And part of the tideflats were once crossed by a streetcar. Story has it that people would send their garbage with the streetcar to be tossed off.

MM: As they got close to the bay?

JO: Well, as they came across the marshland. Recently, there's been some construction on that old garbage dump area, and they had to have security there to keep people away from digging for bottles.

MM: Antique bottle collectors?

JO: Yeah. And those old dumps were burning dumps, and so the wood would be destroyed, but it would leave behind bottles, whereas the newer dumps ran trash compactors and things got broken up.

MM: It sounds as if Commencement Bay may have been built upon a long a history of waste. What about the industrial waste? When did that begin?

JO: The original businesses in the port were lumber-related, cutting railroad ties that connect the railroad. Tacoma was a railroad town. This was a terminus of one of the railroads, and the big battle was whether the railroad was going to go to Seattle or Tacoma. The chemical-related industries came later. The early industry was all wood-related for

Commencement Bay's Thea Foss Waterway, circa 1930.

export. As the chemical industries came in, we certainly got hazardous contamination, but the wood industry for railroad ties or dock pilings used creosote or pentachlorophenol. So, those are some of the waste streams that we've been dealing with.

MM: And pentachlorophenol was banned in the early '70s, was it not?

JO: Right. But here's a little known fact. In Tacoma, we have a company that produces all the wood used in pianos. It is processed and exported to Japan, and so this is beautiful, clear-grained wood to put in a piano, and it's very bright. Have you ever seen a piano with mold?

MM: No.

JO: And, why is that?

MM: Based on what you just told me, I'm going to guess they treat it with pentachlorophenol.

JO: Yeah. I don't know what they use today, but it was one of those interesting inspections I did of an industry that filed their paperwork correctly on how to manage their hazardous waste, and here it was, pentachlorophenol to treat the lumber going in pianos. So, that's one of the interesting things about my job as an inspector is that I, over the years, visited almost every industry. So, I've learned many different processes and what generates different wastes.

MM: That makes me curious. Before you came to Ecology, before you became a hazardous waste inspector, what was your background? It seems as if you must have a great deal of scientific knowledge going into these industries.

JO: My learning was OJT, on the job. I had great role models, gentlemen who had come from small cities. They had run sewage treatment plants, had done all the public works. One of those individuals was Ron Robinson. Ron is now retired, but after he retired from Ecology, he came here to the City of Tacoma as an inspector; so I've followed in his footsteps. There was another inspector I learned from at Ecology, in the Southwest Regional Office, named Jerry Calkins. So, Ron and Jerry were the senior inspectors, the pros. They set a great work example, encouraging me and others to take training on new topics. They would give us training in the field, but then they set us up with formal training and helped us grow.

But I think the other reason I succeeded in the field is that I had a pretty good cadre of people whom I could get the right answer from and not have to b.s. my way through anything. I could always call people like Jim Knudson, in Hazardous Waste at headquarters, for the chemistry and the help, and I could call him at home. There was a chemist at the Northwest Regional Office, John Conroy. He knew everything, and he never had a problem receiving a call at home either.

MM: So, if you could go back a little bit for me. You started in '73 with the Southwest Regional Office, which as I understand covered 12 counties, from the Southwest area on the east side of Puget Sound, up into the Olympic Peninsula. And then what did you do?

JO: Actually, before I joined Ecology, I was with the Governor's Office for a year. I had served in the military, had come back from Vietnam, and there were no jobs. And there was a program to hire vets, Work for Vets, and I think there were a number of us at that period who got hired under that program. I was able to get on registers and get a permanent job. Prior to the military and college, I worked longshoring, canneries, and a summer at Boeing that was really enjoyable. My actual degree is in business administration, and I also had headed toward a teaching degree in industrial technology. I actually got out of the Army early to go back to school for awhile.

MM: So, how long were you in Vietnam, what years?

JO: I was in Vietnam March '70 to about February '71, and so I think after military service, especially Vietnam, a lot of us came back looking at doing public service.

MM: Is it because you felt as if your work in the Army was a kind of public service, and you wanted to continue with that in some way?

JO: It was the reverse. I worked in combat, destroying things. I wanted to do the opposite of that.

MM: So, you went to the Governor's Office, and what did you do there for one year?

JO: I worked for the OPP&FM, Office of Program Planning and Fiscal Management, now known as OFM, Office of Financial Management. I worked in the areas of population projections and school enrollment. I visited a number of cities, looking at growth and business expansions and mostly looking at revenue versus people in terms of what was happening in our state. I really didn't like it, but it was fun going to every city.

MM: Did you get to know the state pretty well?

JO: I did. I mean, I grew up here in west Seattle, but that job gave me the perspective of the whole state, which was of value.

MM: So, how did you transition from that job to working for Ecology?

JO: The Employment Act for Vets gave me about a year to try to find full-time, permanent employment; so I picked up on a number of registers. One of those registers I scored very high on was a position with Ecology. That was in the Litter Abatement Program, which at the time was a brand new program. If you remember, Ecology was formed in 1970. 1972-73 was when they brought in the majority of the first people in response to a lot of new legislation under Governor Evans. Some of those were initiatives or referendums. We had the Shoreline Act, Washington Futures, Litter, and other legislation. So I interviewed and was offered that position in the Southwest Regional Office, where I worked in the Litter Program for a little less than a year. I really didn't care for it, but kind of inched my way in, knowing the inspectors and helping out, and they saw I had gumption. Looking back at it, I remember one thing I had to do in the Litter Program was give a lot of presentations to schools and to various Kiwanis clubs, places like that. So that helped me with public speaking skills.

MM: Was that the part you didn't like, or ...?

JO: I didn't care for the program. I just didn't like selling it. I'm more an outdoors type of person, so I got into the inspection field and learned water pollution and took a lot of classes and, again, with the encouragement of Ron Robinson and Jerry Calkins, achieved wastewater treatment operator certification.

MM: You mentioned to me over the phone, when setting up this interview, what a great experience it was for you to work at the Southwest Regional Office in the '70s. What was it about working in that office with your colleagues there that made it such a unique experience?

JO: To start with, most of us were the same age. We all liked the outdoors, whether it was fishing or climbing or hiking. Everyone worked hard and was committed. There were no big territory concerns. In the Southwest Office, we had 12 counties. You didn't have to worry about coordinating with anybody. You didn't spend all your time in meetings. If I was going to Port Angeles, I would ask my fellow workers, "Do you have anything I need to look at?" Somebody may say, Hey, I've got a garbage dump. Could you go by the landfill? Could you stop at the industry? So, we would share and split workloads, and I'd do a road trip for a week, like a loop around the Olympic Peninsula. And per diem didn't cover a room in Forks.

MM: How many inspectors were you working with? I'm trying to get a sense of this group of guys, who they were, what they were like.

JO: I have a great picture. There were about six or seven of us in the photo. Jon Neel, who also worked in the Southwest Regional Office and now works in the Spills Program at headquarters, gave it to me for my retirement from Ecology. So, let's see; within our group was Jon Neel, me, Jim Krull, Greg Cloud, Brett Betts, Ken Mauermann, and for part of that time, Darrel Anderson, Mike Morhous and Rick Pierce. So, we were probably this same group, with a few in and out, for maybe seven or eight years.

MM: So, how old were you when you began working at the Southwest Regional Office?

JO: Let's see, I was out of the Army, maybe 23 or 24.

MM: I'm also trying to understand the era in terms of environmental rules and regulations. What regulatory tools you were using? This was pre-CERCLA, right? Pre-Model Toxics Control Act, right?

JO: Right. Long before it. Our main tool was the state's Water Pollution Act, which actually was enacted in 1947. So, we were working under the water pollution law, and at this time the federal permits for discharge were just beginning, and so we were starting to draft NPDES permits, National Pollution Discharge Elimination System.

MM: And that was particularly for industries?

JO: Industries and municipalities.

MM: So, you're talking about wastewater treatment?

JO: Right. So, when we wrote the permit for the City of Tacoma wastewater plant, where I work now, it was only like four to eight pages. Now they're at least an inch thick, an inch and a half.

MM: An inch thick, like a hundred pages?

JO: Yeah. More detail, more requirements.

MM: So, what was your charge once you became an inspector?

JO: A lot of that time, it was citizen complaints, and inspecting the industries, and that's where I learned a lot about what the manufacturing process is: What is the waste and what is the interface with the local communities? That also fit with Tacoma, because industries were either discharging to the bay, a waterway or into the municipal sewage system.

MM: How did you become the state's first hazardous waste inspector?

JO: After a lot of years doing water pollution through the Southwest Office in all the cities and counties, and inspecting businesses like log yards, metal platers, ship building and saw mills, and after working as a water pollution inspector, I was, in 1979, given the opportunity to serve as the chief hazardous waste inspector for the Southwest Regional Office. The state had a hazardous waste law prior to the federal program, which was RCRA, the Resource Conservation and Recovery Act. So, I switched from doing water pollution to hazardous waste, visiting many of the same industries, but with a whole new regulatory framework. So, where people had been dumping things out the back door, they now had to contain it, recycle, treat it.

MM: What did RCRA license you to do?

JO: RCRA licensed me to require people to do a lot of paperwork, but again, it was the very first efforts to manage hazardous waste and to get people to recognize that they had something that shouldn't go to a garbage dump, and that they needed to separate their waste streams, test their waste streams and utilize companies that would properly treat and manage the waste.

We, Ecology as the regulators, used to think, Oh, dumping it on land was probably OK. I've since had U.S. attorneys saying, Well, you stupid guys. You should have known. But it's part of learning. Gee, maybe it doesn't evaporate. Or, these soil types are such that it migrates. Oh, it migrates a long way.

MM: So they would hire contractors to deal with their waste treatment?

JO: They could have it taken off-site. As Superfund came along a few years later, most of those off-site areas turned out to be the biggest Superfund sites in the state. So what we were suggesting to people as disposal options became waste sites, Superfund sites.

MM: Because those contractors weren't treating the waste safely?

JO: Correct. And we learned as we went along. We, Ecology as the regulators, used to think, Oh, dumping it on land was probably OK. I've since had U.S. attorneys saying, Well, you stupid guys. You should have known. But it's part of learning. Gee, maybe it doesn't evaporate. Or, these soil types are such that it migrates. Oh, it migrates a long way.

MM: So, can you give me a sense, for the people who don't know Tacoma and weren't around during that time, what you were looking at, how things were smelling and appearing to you as you were looking at Commencement Bay or these disposal sites?

JO: Well, with the inspections and the permits, we learned what wastes were generated, and we asked them where the waste went. Prior to the federal Superfund, and with all the publicity about Love Canal in New York—where several homes and families sat adjacent to former hazardous waste that had been generated by Hooker Chemical Company—there were some special studies and special investigations. One of those studies was at the request of U.S. Senator Eckhart, I believe. So, a bunch of money came to the state. We paired up with EPA and we interviewed many companies that had stepped forward and said, these are our wastes and this is where it went. That was my task. Little did they know that this admission would come back to bite them with new legislation and that they would have to clean it up. So, they were being good guys, and they ended up getting slapped. I did that in over 12 counties, and some of the industries that we interviewed were actually closed facilities, such as DuPont Powder Works and Hercules Powder Works. Both of those are in Pierce County, and so we got this "beautiful" history. Then, down the road, when federal Superfund/CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) came along in 1980, and was amended by Superfund in 1986, we had these pretty good files started. Then, as we needed more information, the costs went up. When they got into moving dirt or pumping ground water, the process became extremely expensive, but necessary.

In Commencement Bay, there were some studies of critters in the bay, English sole, I believe. They found lesions on those critters and we asked ourselves, gee, what's causing it? So that led to Commencement Bay being listed as a Superfund site, which was very, very unusual. And that probably wouldn't happen again, where you list a whole area.

MM: How was that area-wide Superfund classification determined?

JO: It relates to the magnitude of the number of cases. In Commencement Bay, there was the lumber industry I spoke of. As the mills disappeared, log yards—log sorting and storage yards—developed, and the whole logs were exported. So, these log yards were unpaved, but to run the equipment there, what was needed was asphalt or very thick cement, which was a big investment. So in the Pierce County area, what type of fill, what kind of waste, was readily available for free? It was Asarco metal slag. So, these log yards used it as ballast and fill.

MM: And Asarco was the smelter located to the north, along Commencement Bay, near Point Defiance?

JO: Yes, Asarco was a copper smelter, and they had some neat byproducts called gold and silver that they didn't tell you about, but that's why they checked your lunch pail when you left. They made more money off the gold and silver than they ever did off the copper. So, after the Superfund designation, we started our sampling programs. It was a joint effort with EPA. We sat down one day to develop a sampling plan, and they said, well, gee, we'd like to sample the log yards, and I said, "Why? It's just mud and oil and woodwaste." But I was proven wrong because of the slag, which we really hadn't picked up on yet. You see, fir bark is acidic, and so all this bark falls off the logs, and then they run heavy equipment over it. They call them elephants, these big log loaders, and they would drive back and forth over

it while sorting and loading logs, grinding and pulverizing this acid slag. So high levels of arsenic were being released, along with other metals, to our waterways.

MM: In terms of how industries respond to Ecology inspectors in the present, my understanding, through talking to people working in Ecology's Industrial Section, is that these days, the industrial response is more along the lines of, what are we doing wrong, and what can we do to make it better? But I'm wondering, as a first hazardous waste inspector, how were you greeted at the door?

JO: Here's a big difference. You're talking about the Industrial Section. They only dealt with a few industries that were common among the regions: aluminum mills, pulp mills, refineries—the big volume dischargers. Those industries had professional staff in the environmental field. Sometimes they knew the laws better than the state inspectors. OK, but that's only like 20 industries. There are thousands of industries in the state. So the regional inspectors dealt with all the other guys, and that's like what I'm doing now. These people aren't visited very often. They're busy running their company. They don't know the laws or don't want to know. It costs them money. And it takes more energy for the small business than a large business to comply. You've got to hold their hand, coach them and stick with it. They don't worry about publicity, but if you're talking about a Simpson Kraft Mill or a U.S. Oil or a Texaco or a Kaiser Aluminum, then public pressure, the newspapers—that's a big deal. The Industrial Section inspectors usually dealt with another professional, working with the industry, who was somewhat knowledgeable about regulations. So, as you deal with the smaller businesses, you're dealing with somebody who probably wears many hats. So, he might be the production superintendent, but he also has to do environmental compliance and safety.

MM: Your reference to working with the smaller businesses reminds me that I wanted to ask you about a cleanup that you did in Pierce County, a small business that started up as its own disposal site, working with some industries at Commencement Bay. The person who ran that business was known as Buffalo Don Murphy. What can you tell me about that situation?

JO: Shortly after Woodstock, when people with larger properties started having these festivals, Buffalo Don Murphy started doing something similar out here in the Northwest. He had a big farm with some buffalo on his ranch. I'm thinking that's how he got his name. Anyway, he flung some kind of buffalo party or buffalo good times, but he also took a contract to dispose of, oh, I want to say, 1,300 drums of waste from Reichhold Chemical, located on the tideflats. Reichhold manufactured adhesives and pentachlorophenol, and they made Lysol and other sanitizers. So, he was contracted to take these drums of waste to the Tacoma Landfill, which is now a Superfund site, but instead, he thought he could sell it as special potion to coat basements for waterproofing, and for farmers to treat fence posts. He moved those drums to a used lumberyard, and then he moved some drums up to his farm. So that was one of the first sampling sites of hazardous waste and cleanup we dealt with prior to the state Model Toxics Control Act (MTCA).

MM: So, what was the significance of this happening prior to MTCA?

JO: What's important is that we utilized the existing law, the State Water Pollution Law, to get people to do cleanups. There are a number of cleanups that current Ecology people don't know about, which we finessed using 90.48, the state Clean Water Act. On this group

of wastes at Buffalo Don's, there were 1,300 drums originally, and we accounted for 600 or 800 of them. Reichhold came back and paid for disposal of a number of them.

MM: Did he bury any of them or were they found in a barn?

JO: They were dumped over the hill at Pack Forest. The University of Washington bought Buffalo Don Murphy's estate to expand the Pack Forest Tree Farm, and that's when the waste was identified. In fact, Reichhold went up there with us and—again, this was before MTCA and funding—we tied a rope to the back of my state truck on one end, and to the drums on the other end, and dragged them up out of the canyon.

MM: So tell me, how this all would have gone down today, this cleanup with this Buffalo Don Murphy?

JO: Oh, you would have sampled it, written lots of letters and then utilized the contractor. So, you would have had funds to get it removed. In the early years, we were much more hands-on.

MM: Speaking of being hands-on, a lot of people remember you at Ecology, and you're fondly regarded and well respected, not just for the work you did, but the way you went about doing the work that you did, and I'm wondering—

JO: Oh, I know what they told you—that whenever you got in the truck to go into the field with Jim, he always asked, "Do you have any plans tonight?" And that's because I didn't end my day at 5 p.m. I ended it when the sun set or later. So, they knew that we wouldn't be out there for one or two things only and then go home—we'd keep going. I think my record day, coming up here to Tacoma, was 15 inspections.

MM: So, what drove you to do 15 inspections in a day?

JO: I don't know. German background. I'm motivated, hard-working, farm ethic, care about what I do, no life.

MM: Well, you've pretty much answered my question, but in case you have something to add, I'll ask it anyway. That is, for those who've worked with you and for you, they describe you as a boots-on-the-ground-environmentalist, someone who follows the pipes, and who would advise against taking the main roads because of what traveling the back roads might reveal. I'm curious what knowledge you gained by taking this approach?

JO: You get to know the terrain, the drainages and the soils. You certainly see things. One of my inspectors at our office just learned the No. 1 rule the other day. He didn't think there was any problem. He thought the person who called in the complaint might be a wacko, and he drew that conclusion. But the No. 1 rule is, you've got to walk the fence line. You've got to look at the perimeter. You've got to look at it from the backside, from the railroad tracks. You also need to look underneath them by checking their drainages. Otherwise, it's going to look good or maybe someone's going to paint you a rosy picture. We were helping Ecology this morning, chasing an oil spill, and so we opened up a lot of manholes to see if we could find the pollution they were after. Recently, I put something in the budget as a joke. I asked for $300,000 to buy an Air Force drone so we could have a live camera in the sky. Of course, it didn't go anywhere, but what did they launch yesterday or the day before into Mount St. Helens?

MM: Something similar, right?

JO: Yeah, right. So, by remote control, they're able to fly this little airplane into the crater, safely, to monitor the gases.

MM: OK, I want to know about the instances you did follow the pipes, or instances you did walk around the back fence. What stories you can tell me about what you found there?

There were times when I actually photographed people digging, say, an overflow line from their waste pond to let their waste get away. I caught people dumping, just throwing the solvents out the back door. I caught people shoveling their hazardous waste into the municipal garbage Dumpster. You still find that. Those are some of the things we deal with still every day.

JO: There were times when I actually photographed people digging, say, an overflow line from their waste pond to let their waste get away. I caught people dumping, just throwing the solvents out the back door. I caught people shoveling their hazardous waste into the municipal garbage Dumpster. You still find that. Those are some of the things we deal with still every day.

MM: I can see how, now, with your past experience, you could handle a situation like that. But I'm trying to imagine a younger version of yourself, when you were the first hazardous waste inspector. How was it for you, personally, to walk into an industry and, you know, make them shape up and fly right? What kind of confidence did it take or what did you have in the back of your head letting you know, "I can do this"?

JO: Working with industry is straightforward, but responding to the complaints is more difficult because you don't know if it's a neighbor war, and half of them are. One of my inspectors today went out on a complaint, and the guy got in his face and went wacko. That guy has already called our unit boss, and has threatened to come down here and talk to me, which is fine, but when individuals are calling in the pollution complaints, more often than not, there's something else going on. I never really had any problems with the industries. With the small companies, the guys might not be very happy, which might just be a timing problem. Geez, the IRS was just here ahead of you. My wife died. My kid's sick. It's school conference day, and the kid has got problems. You've got to appreciate that there are other things going on in somebody's life, so dealing with hazardous waste is complicated. It's a matter of learning you've got to listen a little bit, and I think an important thing is to be able to look them in the eye and say, "You've got a problem, you're going to clean it up, and let's see what works for you and your schedule," and then follow through. You can give them technical assistance and give them lists of companies that do cleanup work. What worked well for me is that I always had some suggestions. I remember dealing with Weyerhaeuser in Aberdeen. I remember speaking to the gentleman, asking him if he knew their mill in Raymond had already solved a similar problem to what they were dealing with. I suggested he drive down there to look at what they had done. And he thanked me, explaining that because he was in the timbers division, and they were in the sawmill division, they don't often talk. So, providing some coaching

and being the liaison is a good technique. Also, in my older age, I don't take bullshit. It's now along the lines of, "OK, you're going to do it. You're going to clean up your mess and change the way you do business. Let's talk about a date."

MM: The other thing that people have told me about you is that often, when you went into particular industries or just when you went into a situation where you were responding to a call or complaint, or whatever it was, you went in knowing more than that person thought you knew. Can tell me if you believe that's true or not. If it is true, what strategy did you use to gain your background knowledge?

JO: In the early years I didn't have to coordinate and attend meetings or do a lot of other administrative work. I was able to learn things because I had a volume of time to make lots of inspections, and I built my wealth of information, my library, from going to places, which gave me that knowledge. It's not like there's only one sawmill, and that one sawmill is located in Aberdeen. There are sawmills in Port Angeles and other places. So, you walk in, knowing an industry, knowing what you've seen, and what to expect.

Department of Ecology employee Joyce Mercuri samples a storm drain leading to Commencement Bay.

MM: I want to ask more questions particular to Commencement Bay. That is, what was your role after Commencement Bay was designated a Superfund site?

JO: In my part with Commencement Bay as a Superfund site, I had knocked on the most doors. So, I knew the history. One of the first things Ecology did was, through a consultant, we sat down and talked about the businesses wrapped around each piece of waterfront, and came up with a list of 40 or 50 companies. We certainly had some big known polluters that stepped up to the table fairly early on in the process. Simpson Tacoma Kraft, the pulp and paper mill, stepped up. But where I cut my teeth, even before Superfund, was with groundwater investigations at Occidental Chemical, which was Hooker Chemical before changing their name to Occidental, which was the chemical company responsible in the Love Canal case. But they came to us with their consulting firm that had done Love Canal. In fact, one of the people I'm dealing with now, from the same consulting firm, came to us and said, well, here's what used to happen here, here are some problems, here are some things we want to do. And that cleanup is still going on. As part of the investigations they said, well, yes, we dumped waste here. We dumped it in the bay, but here are addresses of other parcels where we dumped and buried chlorinated waste. Some of those sites have been cleaned up. Three of them have not been touched.

MM: So, chlorinated waste is buried? That never dissipates, never evaporates?

JO: Well, if you fill over it and you pave over it, the waste forms a little crust mixed with clay, filter of clay. There are other companies, such as U.S. Oil and Refining, and one of their products is jet fuel. They run that through a filter media, or they did, and they had people haul it off for disposal. Well, people used it as a sanding material, used it for fill, and

so they didn't know where it went, and the guy that used to haul it off died. So, every now and then, when we're doing something, we'll dig into it.

MM: And you said that this could still happen today? People still do illegal dumping?

JO: Oh sure. We've got a criminal case going on now from last December. It was restaurant kitchen grease.

MM: Really?

JO: It was traced after that. So, it spun off to be not only a problem here in Tacoma, but this particular company is operating in several Western states, and so enforcement is being put together by a U.S. attorney for illegal disposal of grease.

MM: Could that have been recycled and used as bio-diesel?

JO: Well, that was one of the thoughts as we were tracking it down. Maybe a garage mechanic got a hold of some, and couldn't work it out, so he pushed it all down the storm drain, and it happened to show up in a wetland next to a grade school.

MM: And what kind of contamination is that?

JO: It's just putrid odor, but it looks bad. So, we had to clean it up, and it was costly. Just last week we came upon a drum of hydrofluoric acid, which is really nasty stuff.

MM: Hydrofluoric acid, what's that?

JO: It etches glass. If you want to make frosted glass, that's how they do it, and so there's a drum of this at a mini-storage building, sitting outside, rusting through. We interfaced with Ecology and Hazardous Waste Program to get it removed. So, there are still ghosts out there.

MM: I want to go back to that list of 40 to 50 industries around Commencement Bay after Superfund. What was your job then?

JO: Well, that was when Model Toxics Control Act began, and I was brought into that unit. We put a lot of energy into drafting legislation, working to clean up known sites. At that point, I was working statewide, and so I was involved with a lot of landfills. Also, there were a number of gasoline releases from underground storage tanks, which weren't quite regulated yet. So that was another big program to come along. MTCA's passage included a big pot of money, a lot of new people came on board to do cleanups. At that point, I was not part of Commencement Bay. New personnel ran with those sites that we had put on contaminated sites lists.

MM: And did people come to you and ask you questions about the history of those sites?

JO: They did, and we did a lot of pulling of the old files, and there were a lot of lawsuits. Once you worked things out with an industry, often then the industry would turn around and sue their insurance carrier, because early policies did not exempt environmental type pollution, so insurance companies paid the bills.

A lot of activities in the early years were with Tacoma-Pierce County Health Department. They were very active, and we coordinated well. So, as the money came in, they formed

some Commencement Bay action teams, and so a team of inspectors went back to the different industries and got a lot of good things going.

MM: And when you said you worked with the health department, what was the work of the health department, what was the collaboration?

JO: This is going back to before we really had a state MTCA. At that time, the Tacoma Health Department was concerned about the health of the bay and management of waste. They got some grants, and they were sampling and inspecting. I know you're focusing on the bay, but ahead of the bay, we had a very serious contamination of one of the city wells—Well 12A.

MM: Tell me about that.

JO: The source of contamination is just on South Tacoma Way, just outside of Commencement Bay, owned by Time Oil; but prior to being Time Oil, it was another one of these hocus pocus recyclers. As in, let me take your solvent. Let me take your carpet trimmings, and we'll grind it up and make a new roofing product that is super. So, somebody was trying to make a roofing compound, and took some very toxic waste, actually from Boeing, and a lot of stuff got dumped on the ground and it showed up in the drinking water supply, specifically, Well 12A. Currently, there are stripping towers that have been operating now for 15 years to take the solvents out of the ground. There are a number of other sites that have been remediated. In fact, across the street from where I work at the Public Works office in Commencement Bay, was a place called the Tacoma Tar Pits, and that's been remediated. Whenever you see a nice mound of grass in an industrial area, it's not that it's a park; that's a contained area of waste. In fact, I have a photo of the area with me. Doesn't this look kind of nice, all groomed?

MM: Yeah, it looks like you could golf there.

JO: That's a mountain of entombed waste.

MM: Do you call that a cap?

JO: Well, it's both contained and capped.

MM: And so what's under that, clay or something? Is there a liner?

JO: I don't know the design specifications. Sometimes it's clay; sometimes it's lined.

MM: So, were you conducting inspections in the era of the "aroma of Tacoma"?

JO: Oh, that was the pulp mill, the particular process. There are different types of pulp mills, different methods for cooking paper, but it all relates to what the end product is, whether they're making writing paper, or they're making cardboard or what have you. It was very noxious. The odor would always hang out where you drop down the hill by the Tacoma Dome, that area. When you get out closer to the bay, you'd have the wind. I don't remember it ever making me sick, but I certainly contacted Dick Burkhalter and his folks in the Industrial Section if there was something really noticeable.

MM: What's your sense now of what impact the controls and laws had upon the receiving waters in Commencement Bay and the ambient air of Tacoma?

JO: Well, I'd say from the industry, air is better; but just the auto emissions, the best gauge is looking at Mt. Rainier. You used to be able to see it, at least when I was a kid. Now it's just a haze. Two days after we have nice weather, it's yellow haze hanging all the way over the mountain. The water, I think, is much improved. Because of all the exports of logs, the Commencement Bay waterways used to have lots of bark and dirt and mud and oil. Those waterways are cleaner, and people now say, gee, we have crabs, we have critters, we've got critters eating our docks. If you left the pollution in the water, we wouldn't have to replace our docks. But a lot of the log yards went away. Weyerhaeuser takes the bark off the logs, so they're exported without bark.

MM: Why do they do that?

JO: Japanese don't want the bark. It takes up room, and it takes up weight, so you can get more stripped logs on the ship. And if you have a paved yard, then you can sell the bark for what's called, "hog fuel" or "beauty bark," so they make money both ways and get more logs on the ship.

MM: What do you think is the biggest threat to contamination of receiving waters in the bay today and in the near future?

JO: A lot of people point to the storm water, and that's why I was brought on board to have inspectors, gung-ho folks, out there to track it down and make corrections. In fact in the Public Works budget generally there are cuts, but we're in for adding probably two more inspectors.

MM: How many inspectors do you have now?

JO: Three.

MM: And this is for the whole City of Tacoma?

JO: Right, for storm water, and a good part of our time is spent with the Thea Foss cleanup, monitoring and reporting. Now, we have other inspectors who do the sanitary side and they also look out for storm water. Our streets department has an individual because of ESA, the Endangered Species Act, who has really done a good job educating our street crews so they do better. Our people in our construction division have had erosion control training. They do a little better. We have a lot of redevelopment happening in Tacoma, lots of construction. All the downtown is torn up. Pacific Avenue is being totally repaved, but all the utilities are being rebuilt—water, sewer—so that has the potential of flushing things. Like a lot of cities, we probably haven't spent money on infrastructure as much as we should. Again, there's a need to rebuild sewers. Then there are ghosts that don't seem to go away. We've had chronic heavy oil released to the Thea Foss, and we've pursued the railroad to do a big cleanup. I knew there was a tank out there that hadn't been found, so we found a tank from 1947, 20 feet long, 8 feet in diameter, still with 65 inches of oil in it. It was right in the area near where I work, close to the water, and it was leaking. As the groundwater would come up with the rain, these big tar globs kept coming out.

MM: How did you find out about the tank?

JO: By being low-key, finessing a plant owner, gaining his confidence, asking questions, and he said, I'll give you something. Don't tell them where it came from. So, we found an old blueprint, and he said, look on there. See if you see anything that says tank.

MM: Incredible.

JO: So, there's no shortage of work. We spent the last couple months and $400,000 to rebuild the drain to stop the pollution from coming out, and the tank's still full of oil. So, we had to nail the date down to get it done. Ecology told the owner of the building to do it now. But it still hasn't happened almost a year later.

MM: But if it hadn't been for the work you guys did through Ecology and RCRA, CERCLA and MTCA being passed, what do you think this bay would be like now, and what would be the problems you'd be facing?

JO: I think there's the economic side to it, you know. Do you want to own a boat if the water's full of wood waste and oil? So, that's an industry, and fishing is important to a lot of people. So, it wouldn't be healthy for the critters. Again, aesthetics. You can see we have a lot of marinas on Thea Foss and actually on Hylebos, too.

MM: It probably wouldn't smell too pretty. People might not want to hang out at the marina.

JO: Yeah, if we didn't have a high degree of wastewater treatment, that would impact the bay. We're into a multimillion dollar cleanup. We're long past the study phase for the Thea Foss Waterway and there are new marinas. There's a new esplanade, and the shoreline is more friendly with what we call, "salmon mix." So, there are places for the small fish to hide and migrate. A neat thing for Tacoma is the University of Washington, Tacoma Campus, which is 40 acres and it's only about 2,300 students now, but there's a potential for being much larger. They're looking at bringing in a tall ships convention in '05. Downtown is being rebuilt with condos. They have restored a lot of old buildings as well.

On the Dock of the Bay, Citizens Keep Watch

An interview with Sheri Tonn
October 29, 2004

Tonn

Position held at time of interview:

Treasurer, Citizens for a Healthy Bay, since 1995

(Former President of Citizens for a Healthy Bay, 1990-1995)

Vice President of Finance and Operations and Professor of Chemistry for Pacific Lutheran University

Education:

- Bachelor of Science in Chemistry, Oregon State University, 1971
- Ph.D. in Chemistry, Northwestern University, 1976

Maria McLeod: Regarding your involvement with Commencement Bay in Tacoma, what is your current role and history working with the citizens' environmental group, Citizens for a Healthy Bay?

Sheri Tonn: I'm currently treasurer of Citizens for a Healthy Bay. I served as the first president and was one of three co-founders back in 1990. After six years, I became treasurer, and I've been treasurer the whole time since.

MM: What is your current position at Pacific Lutheran University?

ST: Right now, I'm vice-president of finance and operations at PLU. I began teaching at PLU in 1979 as an assistant professor of chemistry, and I am still a faculty member in the Chemistry Department, holding rank of professor of chemistry, but needless to say, I don't do a whole lot in the Chemistry Department today.

MM: What is the connection between your chemistry background and the work that you've done with Citizens for a Healthy Bay?

ST: I've been an environmental activist for a long time, since the late '60s, when I became interested in water quality as an undergraduate chemistry major. When I came to Pacific Lutheran University, I started teaching environmental chemistry. It was one of my first teaching assignments, and because of my interest in water and my earlier involvement as an environmental activist, one of the first things I wanted to do—being brand new to the area—was learn about Commencement Bay. So in 1979, I started boning up on what was going on in Commencement Bay and Puget Sound in general, and I immediately began to take that back to the classroom. I also had been a longtime Sierra Club activist, and in Minnesota I had been involved in the Boundary Waters Canoe area, and in a whole variety of issues with Lake Superior and water quality. So as soon as I got out here, I was looking for areas to become active. I got involved with the Sierra Club, and they needed a water chair. So all of a sudden, I was the water chair for the local chapter. Again, I started looking at water issues, and one of the really hot issues, at that point in time, was sewage treatment, requiring secondary sewage treatment for every discharge that went into Puget Sound. One of the biggest facilities was the Tacoma Central Wastewater Treatment Plant. So right then, I became interested in what was going on with the Tacoma Central Wastewater Treatment Plant.

MM: As far as secondary treatment to wastewater treatment plant discharges, basically the permits stated that they had to apply secondary treatment to discharges to fresh water, but not to marine waters. Is that what was going on at that time?

ST: There was what was called a "marine waiver" in the Clean Water Act of 1972, which allowed the federal government to say that a plant did not have to implement secondary treatment. Tacoma had applied for a marine waiver and had been denied, and because it had been denied, they were then beginning to work on what they were going to do about secondary treatment. They weren't very happy about it, but they were beginning to move ahead with it. And of course, they finally got their plant built that was completely secondary, in the mid-'80s. At the same time, Seattle was really fighting to get a marine waiver, and ultimately they ended up putting in secondary treatment as well. So the issue was pretty hot and heavy when I arrived here in '79 to '81.

MM: And secondary treatment means ...?

ST: It means removing a whole bunch of additional biological materials from the wastewater, and generally that's done using biological digestion, so the bacteria eat up a lot of the biologicals in the wastewater. It starts out with what's called high BOD, biological or biochemical oxygen demand. What that means is it's a bunch of chemicals that eat up the oxygen. So, if you can reduce the amount of BOD, then you can have more dissolved oxygen in the water. So, the process of secondary treatment takes out pollutants that eat up the oxygen, and then the amount of dissolved oxygen goes up. That's one of the topics you spend a lot of time talking about in an entry-level environmental chemistry class. Here we had the perfect example. So, I was interested as an environmentalist, but also as an academic, and that's something that was easy to take back to the classroom.

MM: Did you involve your students, taking them out to Commencement Bay?

ST: Over years, a lot. Early on, not very much. I taught a number of summer classes for high school kids, where I took them out to do writing on kinds of environmental sampling. In more recent years we've taken a lot of PLU students out. I did some sediment sampling, saltwater sediment sampling, and was particularly interested in some chemicals in the sediments in Commencement Bay and elsewhere, but it wasn't something where I took whole class loads of students out to do sampling in the early years. It took me a while to kind of figure out how to go about doing sampling with students. Eventually, I began soil sampling and grass sampling around Commencement Bay. The reason I was sampling grass is because Kaiser Aluminum Plant was putting fluoride into the air, and fluoride is taken up in the grass in chemical compounds like fluorocitrates. So, you can actually measure how much fluoride is in the grass as you move away from the smelter, and it made a really slick student project. It was amazing what good data we could get in student projects using the grass. You know, we'd go out and take our little grass samples right at Kaiser Aluminum and move further and further away.

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MM: I came across a 1984 Remedial Investigation report from a study done of Commencement Bay by one of Ecology's contractors, a company called Tetra Tech. There's a list of base metals and other contaminants, which I don't entirely understand because I'm not a scientist, not a chemist, but I'm curious if that kind of information was available to you at the time?

ST: Absolutely, and if you were to look in the back corner of my office, you'd see many documents like that. I have copies of pretty much every document that was ever issued on Commencement Bay. Also, Citizens for a Healthy Bay has a very large archive of documents. But through the '80s I got copies of them all, and I read them all pretty

voraciously, pretty analytically, and, in many cases, I read drafts of them. I would often get a draft of a document, and I'd go through the draft and ask questions before the document was ever finalized.

MM: Well, when you do get a document like this list I have from Tetra Tech—I guess we're looking at chemicals here, and metals, probably a variety of things I don't really understand, although many of the chemicals actually I do know are now banned—how does this information translate to you as a chemist, as a scientist who knows and understands their significance and impact?

ST: I have a fairly good understanding of toxicology, and I understand how various chemicals are metabolized or how they would break down, chemically or biologically, and how they're going to partition between the air, the water and the sediment. So, looking through a list of chemicals like this, I could pretty quickly tell you which ones are likely to be persistent, and which ones are likely to degrade, or which ones are going to get diluted out, and which ones will bioconcentrate.

Part of that knowledge I gained from documents like these. In preparation for this interview, I pulled out "A Summary of Knowledge of Puget Sound Related to Chemical Contaminants," which was published by the National Oceanic and Atmospheric Administration (NOAA), and EPA had a role in it, and there were various consultants involved. There were a whole series of these blue NOAA technical documents done, which really began to provide a fundamental understanding of what was going on in Puget Sound with regard to chemical contaminants. Documents like this would have, say, maps. This map I have here happens to show where various bottom fish were, and other maps show where various chemical contaminants were. So, at the time, I would have pored over something like this—with a map of Commencement Bay—I would have pored over every spot in the bay and become familiar with what was ending up where. Fundamental scientific research was going on in estuaries from about 1975 to about 1985. The document you found, by Tetra Tech, was written when they were then trying to take the contamination that was there and turn it into public policy.

MM: So, I wonder, in the midst of these studies and the recognition of the nature of the pollutants in Commencement Bay, what would you cite as the initial impetus for forming Citizens for a Healthy Bay, which, as I understand, didn't form until 1990?

ST: In 1983, almost as soon as Commencement Bay was declared a Superfund site, the Tacoma-Pierce County Health Department, with the support of EPA and Ecology, organized a citizens' advisory committee, and I was appointed to that citizens' advisory committee. So, from 1983 until probably late 1988, that citizens' advisory committee was able to review documents, make recommendations, and talk about the issues. The agencies were fairly open about providing us with information. In the early '80s, the Tetra Tech people, the authors of the document you have, would show up at our meetings periodically. EPA people would show up at our meetings, and Doug Pierce, the guy at the health department, was the staff person running the meetings. Then, in about 1988, the final Record of Decision, regarding the scope and timing of cleanup, was issued, and there was the potential for litigation—EPA really started to limit information to the citizens' group. If they released anything to us, they informed us that they had to release it to the general public at the same time. So, the whole atmosphere changed because, at that point in time, the EPA decided

that they didn't need a citizens' group anymore. The citizens' group had been made up of people from around Tacoma and, as I said, we had reasonable access to information, and we understood what was going on. So, as the agencies began to limit information and began to view the citizens' group input and advice as unnecessary, some of us started talking about the fact that we really needed an environmental organization in Tacoma.

At the same time, EPA had established the technical assistance grant program through SARA, Superfund Reauthorization, which was passed in 1986. So, by 1990, EPA began awarding the first technical assistance grants. I saw this as an opportunity to help continue to provide information to people in Tacoma, and so I applied for one of the early technical assistance grants. There had been few or none issued by EPA, Region 10, at that point in time. The first one was issued in Eagle Harbor, and I didn't like the way that one was run because, essentially, the citizens' group got the money to then give to a consultant to review everything and tell the citizens what it said. Well, I had a Ph.D. in chemistry. I'd been following this issue for years, and I had acquaintances who had Ph.D.s in chemistry and fisheries biology. The last thing I was going to do was see the money go to—nothing against Tetra Tech—but see the money go to Tetra Tech at the rate of $100 to $120 an hour, where they'd give us back a three-page synopsis of something that I could have read in the first place. So I said to EPA, hey look, instead of you doing it that way, why can't Citizens for a Healthy Bay just have its own technical experts, who are employees, review the documents. That way, we'll use the money much more cost effectively and essentially get to the same endpoint, but EPA didn't much like it. They didn't quite know how to handle it, but I was persistent enough that they went ahead and said, well, OK. We're still doing it that way, and they're still scratching their heads over it because that's not the way most of the technical assistance grant money has been spent.

MM: What are some of the other things Citizens for a Healthy Bay does? For example, how does it operate and work with the public?

ST: It started out as an organization focused on Superfund and on other water-quality issues in Commencement Bay. At the same time, we knew that the water-quality issues were very tightly linked to habitat. In the early years, Citizens for a Healthy Bay also became very interested in urban habitat. Our slogan was, "Citizens for a Healthy Bay, Healthy Environment, Healthy Economy," which expressed the idea of linking the economy and the environment. In the early years, all through the '80s and even into the early '90s, there was a very strong bias that you could not have any kind of habitat in an urban environment like Commencement Bay, and that the habitat was so degraded, you might as well just write it off and try to protect the habitat elsewhere. I've never been a proponent of that. I've always believed that an urban bay can have healthy habitat, and if it's not healthy for the critters in the bay, it's not healthy for the people living around the bay. The other part was that people would say, well, the salmon coming into the bay are only migratory. I'd say, yes, but the salmon have to eat as they're passing through Commencement Bay, and either there's nothing for them to eat, and they're going to be stressed when they go to sea, or, if there is something for them to eat, it's going to be bad for them. So, we have to do

I've always believed that an urban bay can have healthy habitat, and if it's not healthy for the critters in the bay, it's not healthy for the people living around the bay.

something to ensure the salmon can eat as they move through the bay. As a chemist, it took me a long time to get it through my thick head that critters have to eat, and I find a lot of people have a hard time with the concept that marine critters eat.

Also, NOAA was doing a lot of work on bioaccumulation, and in their work on bioaccumulation, they determined that substances were accumulating and concentrating in marine species. They not only looked at toxicity to various kinds of liver enzymes, activation of enzymes that cause carcinogenesis to ultimately occur, they also looked at immune suppression. It can be hard to communicate some of the issues involving things like immune suppression in urban habitat, but people do understand critters getting cancer, and critters being stressed. So, that was a very long way of saying that when Citizens for a Healthy Bay formed, we were also interested in habitat-related issues. Commencement Bay originally had a mudflat, a tideflat estuary area that looks a lot like the Nisqually estuary along Puget Sound to the south of Tacoma. Of course, Nisqually has been affected too, but not nearly as much as Commencement Bay. Commencement Bay originally lost about 6,600 acres of historic tidal and intertidal upland area in the estuary. In 1992-93, about a year or two after we had formed, Citizens for a Healthy Bay organized an event at Tacoma Mall. We had a whole bunch of booths from all kinds of agencies, every agency we could get to be there: Fish and Wildlife Service, Department of Ecology had a really neat one, City of Tacoma—you name it—all had booths there about the Commencement Bay cleanup project. One of the things that Citizens for a Healthy Bay did, in our exhibit, was to poll people on how much habitat they thought should be preserved in the bay or restored. People really, for whatever reason, liked the figure of 10 percent, roughly 660 acres. Because of that, and because of the work being done by a variety of businesses in the tideflats, including Simpson Tacoma Kraft, an awareness of what might be available for habitat restoration and for preservation was already there. We could identify several hundred acres that were obvious areas for habitat restoration and protection, and we thought, let's come up with a goal. So that's how we came up with 660 acres. At that point in time, CHB started working on habitat restoration. In addition to that work, we began education and working with kids. Over the years, we've done a ton of things, such as storm-water drain stenciling. So when you have a storm drain, we would put a stencil sign on it that had the little salmon on it and the words, "Do not dump, waste drains to bay." It's a great project with kids. They use latex-based paint, and so it only lasts two years, then it has to get redone, which I don't view as all bad because we've got the next bunch of kids that we can take out there and do stenciling again. It's always new to the kids, and college students and interns love doing that with younger kids, so it's a great project for volunteers.

MM: What were your other educational projects?

ST: We had a project where we worked with non-English speakers to try and get brochures translated into Cambodian, Spanish, Russian and other languages to educate various ethnic populations who were likely to eat the critters in the bay. We had money from Ecology, which was probably a public participation grant under Model Toxics Control Act, MTCA. We not only had those brochures translated by the Tacoma Community House translators, we also had some interns who were Asian-American kids, young people, who would take the brochures home to their grandparents and ask, what do these brochures say, in order to try and figure out what their grandparents were getting from the translations in Cambodian or whatever language. We wanted to see not only what they were understanding, but what message we were sending. Then we'd change the brochure to try to make the message we

wanted to send. That was a really fun and really interesting project because when we first had the brochures translated, we were sending the wrong message. What they were originally hearing was, "you don't want us to eat the fish and we think you don't want us to eat them because you're saving them for yourselves." Rather than, "you don't want us to eat the fish because you're concerned about our health and the fish could be bad for us." I'm no cultural anthropologist, but I really thought there was a story there.

MM: How did you think to translate the brochures in the first place?

ST: We were working with some of the people who lived in the public housing project called Salishan on the east side of Tacoma, and we also saw a lot of Asian folks down on the docks, fishing and catching these poor little pathetic fish that didn't look very good, and we knew they were taking them home and eating them.

MM: You mentioned, in addition to educational efforts, habitat restoration. Could just tell me a little bit about what that entails.

ST: In Tacoma, there are many sites that had been degraded in one way or another. They could have been degraded by some kind of industrial use or any number of ways where it was not suitable habitat for critters. It could have been chemically contaminated, or maybe not chemically contaminated, maybe it was dredged too deep. As the various companies and government have done their remediation or cleanup of hazardous chemical sites, they've also been required to do some additional habitat restoration. Generally, what happens is that a site is identified and then that site is recontoured, and there may be actually an area of contaminated chemicals that are contained and capped off, but then the site is recontoured. So, it becomes a more suitable habitat for the estuarine environment, and then it's planted with whatever is appropriate. Then somebody's got to water those plants for a few years, until they really get going, and then somebody has to monitor and clean up to make sure that they actually stay the way you want them to stay.

MM: So, is habitat restoration sustainable? Can you bring an area back to what it was?

ST: In an urban area, we're always going to have to continue to do work on that habitat. It's not like back before it was urbanized, and it could take care of itself. You know there's going to be garbage that washes up or gets dumped. The soil has been disturbed, so your plants may or may not really take off. You may have to go in and replant the plants, and, of course, in the Puget Sound region, we have a bunch of invasive species: blackberries, Scotch broom. You're always going to have to go in and rub that stuff out of your sites. Volunteers love doing that kind of work. The kind of stuff I do is different and has a very high degree of ambiguity, and can sometimes get pretty frustrating. But cleaning up a site, or monitoring a site, is something where volunteers don't get so burned out, and there's always new volunteers to come in and take it up.

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MM: I want to go back to the issue of funding. You mentioned that you got some funding from MTCA to do the translation of the brochures. I'm curious as to where citizens' groups get their money? Is it one source, or multiple sources? How does that work?

ST: In the early days of Citizens for a Healthy Bay, I would watch for every grant opportunity that came up and apply for them. So we, Citizens for a Healthy Bay, have traditionally received a lot of money from various grant sources, government grants and private foundations, such as the Bullitt Foundation in Seattle, which was originally funded by the Bullitt sisters.

MM: Who are the Bullitt sisters?

ST: Their mother founded KING-TV and KING FM radio, what used to be KING AM radio, and had built quite an empire of radio and TV stations. There were two Bullitt sisters, Harriet Bullitt and Patsy Collins, and they sold off their empire. They'd had a foundation beforehand, but they put a ton of money into that foundation and it funds all kinds of environmental activism. Patsy Collins passed away. Harriet is in her mid-80s. So, that was one foundation that we got a lot of money from, and there were a variety of others. Today, The Russell Family Foundation funds a lot of environmental projects related to Puget Sound. So, now we get money from the Russell Family Foundation as well. Other grants come from several other private foundations as well as government grant programs and government contracts. In addition, CHB is a member organization, so people pay dues. Private individuals contribute, and we get some corporate money.

MM: In terms of the funding you receive from Ecology or even these other philanthropists, are there any stipulations as to how you use the money?

ST: Always. And you always have to keep track of how you spent the money. With the government agencies, it's by reimbursement. So it means, you've got to front the money and then the agency reimburses you for the activities you've done. There's a very high level of accountability. With the private foundations, the numerical accountability is not quite as rigorous because they're looking at the product, not the process. The agencies are always looking at both the product and the process, and so it can be really easy for a citizens' group to get screwed up in terms of accountability with the agency.

MM: I know that you also served on the Puget Sound Water Quality Authority, and I wondered how that was related to your work with Commencement Bay and CHB?

ST: I was with the Puget Sound Water Quality Authority through its entire existence. I was on the first Authority that started in 1983, and then, in 1985, the legislation was established that actually created a staff and a funding mechanism for the Authority. That whole structure of the Authority was changed in 1990-91, and it was moved over to be co-located at Ecology. Nancy McKay became the executive director of the Authority, and then, in 1996, the Authority was dissolved, and it became the Puget Sound Action Team under the Governor's Office. That's still housed at Ecology. So I was involved from 1983 to '96.

MM: Can you explain how the Puget Sound Water Authority was different from the citizen's group?

ST: It was a state agency, but with an independent board. Those of us who were appointed to it, were never called, "The Board of the Authority," we were called "The Authority," and

needless to say, there were people who didn't like people like us having the authority that we had.

MM: So, tell me a little bit about what Puget Sound Water Authority did, and how that helped in forming Citizens for a Healthy Bay?

ST: Well, among other things, it provided me with amazing access to information and people. The first plan we did was in 1986, and released in 1987. In that point in time, Kathy Fletcher chaired the Authority. Christine Gregiore was an ex officio member in her role as the director of the Department of Ecology. Tim Douglas, at that point, was the mayor of Bellingham, and he was a member. Les Eldridge was a county commissioner for Thurston County, and served as Authority vice chair. Dwayne Fagergren represented the oyster growers at that point in time. He later became an employee of the Authority. He still works on the Puget Sound Action Team. Hugh Spitzer was a citizen member who was an attorney in Seattle. Terry Williams was the fisheries manager for the Tulalip Tribe and a Northwest Fisheries Commission member, and still is very active. Brian Boyle was commissioner of Public Lands. Margorie Redman was from Poulsbo, and had been active in the League of Women Voters and past efforts to clean up Lake Washington. Mike Thorpe was an attorney in Tacoma, and he was the chief attorney for Asarco. It was a great group. We got along really well, and it provided me with a lot of access, among other things. Each year, we prepared an updated plan for Puget Sound, and, in some cases, parts of the management plan was put into law. For example, the state sediment standards for the quality of marine sediments that are regulatory standards in the same way there are standards in the Clean Water Act that provide for the water column. Those standards were something that we proposed and were adopted. Many of the ideas about how to manage nonpoint source pollution were standards that we originally proposed and were adopted; so, a lot of what the Authority did has actually gotten put into place. Some of it was very political in terms of being a lightning rod, and that's ultimately why the Authority disappeared. But before disappearing, the Authority prepared outstanding publications that summarized pollution problems in urban bays, and tried to tackle control of point and nonpoint sources. It was responsible for state sediment standards that have helped clean up Commencement Bay. Overall, my connection with the Authority really helped conceptualize how we could improve our bay.

MM: So, the Authority was suggesting laws to the Legislature that seemed too stringent to these other groups?

ST: We were taking issues to the Legislature, and the Authority, since it was a state agency, you know, it had real access to the Legislature. We also could kind of tell Ecology to do things, and that, of course, always got a lot of attention. What authority does the Authority have?

MM: In terms of your group, CHB, what is your relationship to other citizen groups?

ST: For many, many years, the only other citizens' group in Tacoma that had any paid employees was the Audubon Society, and it was more of a naturalist staff than an administrative staff. Most of their administration was done with volunteers. So for many years, we were the group, with an office and a staff, that other organizations looked to as a centralized point. We were involved in many kinds of coalitions; we still are, but as it is now, other groups have more structure than they did in the early years of Citizens for a

Healthy Bay. Other groups would look to Citizens for a Healthy Bay for leadership when it came to anything involving the bay or the estuary. So, we'd work closely with Audubon Society or Trout Unlimited or Ducks Unlimited or the Tahoma Land Conservancy, which merged with Cascade Land Conservancy to form and group called Tahoma Land Conservancy. Various other groups came and went, based on specific issues, and we'd work with them. Of course, we worked with the Sierra Club, environmental education people with the Tacoma School District, the City of Tacoma and the Tacoma Environmental Commission, the Utilities Board—we worked with all them. In many ways, we would end up being kind of the clearinghouse, and help provide other groups with information. The City of Tacoma actually hired us to respond to calls to the spill hot line, so that if a citizen or another citizens' group saw something weird happening, they'd call us, and then we'd channel the call to the appropriate location. We still do that on contract for the city now.

MM: What about this recent spill, for example, the one that happened at the end of September in Commencement Bay? I believe it was estimated, at least initially, as a 1,000-gallon spill. I don't believe they know the culprit yet, but did you receive that call?

ST: Citizens for a Healthy Bay has a bay keeper, and that's the person who goes out on the patrol boat. Ecology called Citizens for a Healthy Bay at about 8:30 that morning. Shortly after that, we started getting calls from people on Vashon Island saying something was up. Through the whole thing, we got a variety of phone calls—some from volunteers, others from people wanting to volunteer, people wanting to know what they could do—so we acted as a place to coordinate phone calls, basically collecting names. You may have seen the report that a guy thought he saw a burning barge. I think he eventually called us, and we put him in touch with the appropriate individuals. So, we end up doing a kind of shuttle diplomacy.

MM: Tell me about your bay keeper. Does CHB actually own boats?

ST: We own one boat, and we actually just bought a new boat this last summer. We have somebody out on the water a certain number of days a week, trying to keep it random and to try and provide boater education. We've handed out a zillion boater cleanup kits in the past; oil spill kits, that kind of stuff, and we've gotten money from Ecology and from the PIE fund to do those kinds of things.

MM: What's the PIE fund?

ST: The Public Involvement and Education fund, PIE fund, originally came from the Water Quality Authority, and it's now part of the Puget Sound Action Team. It awards money for groups who do educationally oriented projects related to water-quality improvements.

MM: I imagine when there's an oil spill in Commencement Bay, the media must contact CHB for some kind of comment or feedback. What is CHB's function in that regard?

ST: I, personally, used to get a lot of media calls. I don't get so many anymore. I would rather they go to the executive director, Stan Cummings, who's very good, very experienced. If he can't respond to them, then our senior policy person, whose name is Leslie Ann Rose, will take them. If she can't, they'll toss them to me, or if they need a historical perspective, they'll direct them to me. But, in the early years, I was pretty much the media contact.

MM: What have been some of the incidences or moments when the media contacted you?

ST: Usually the calls would be regarding a variety of other cleanup projects. Anytime something would go awry, I would generally get a call. Simpson Tacoma Kraft did one of the early habitat restorations. As part of their cleanup, they looked at the mouth of the Puyallup River, where the Simpson plant is located right in the bay. Historically, the area was squared off with a bunch of pilings that went out; it was very, very badly contaminated. Simpson bought the mill from Champion, which had merged with St. Regis in 1985. Simpson had negotiated liability on the part of Champion, so Champion knew they had to pay a good share of the cleanup cost. Simpson wanted to get the cleanup done in short order, before Champion disappeared and the money went away. So, Simpson did a great job of doing this cleanup, and in the process of doing the cleanup, they took all their contamination and piled it in a big hole and put a cap over it. Then they put a secondary cap over it to create intertidal area. That intertidal area has slowly become repopulated with critters. Every year or two, in June, Simpson will have a beach walk, and that's a perfect example of a case when I'll talk to the press. The press wants somebody to go out there and say, this is what it used to look like, and here's some of the neat critters that are here now.

MM: What was your involvement with Asarco, the copper smelter that eventually closed down? I understand that was a heavy polluter near Point Defiance? What's the story behind Asarco?

ST: Asarco was founded by William Rust in 1888. It was originally a lead smelter, but in 1905, or thereabouts, it became a copper smelter. As custom copper it smelted ore that was high in arsenic. They did that because ore has a lot of arsenic in it. It also has gold, silver, platinum and palladium. Those are the elements that were worth the money, and so they would get ore from around the world that was high in arsenic, and then they'd blend that ore until it was about 4 percent arsenic. That was how the smelter was designed, and since it was a very old smelter with a very tall stack, it produced a lot of air pollutants. It was the largest source of sulfur dioxide in the area. Originally, I became interested because of the sulfur dioxide emissions, and because it also had a fairly high level of arsenic emissions, spreading arsenic contamination over a fairly wide area.

MM: Could you smell the sulfur dioxide?

ST: Actually, no. You can't smell sulfur dioxide. You can smell hydrogen sulfide. If you can smell sulfur dioxide, it's really bad because your nose is much less sensitive to sulfur dioxide than it is to hydrogen sulfide. Mostly, what you could smell in those years was the paper pulp and paper mill. Sulfur dioxide is really bad for asthmatics. So, through the Clean Air Act, the EPA was trying to get them to clean up. They finally agreed that they'd do several things, which I knew was a stalling tactic because they were building a new smelter at Hayden, Arizona. As soon as that new smelter was ready to open, I was sure they'd close the smelter in Tacoma. So the issue went from being an operating smelter, putting out a bunch of bad stuff, including dumping hot slag into the water, to all of a sudden, overnight, becoming a Superfund site. So that cleanup started in about 1985, and it's just getting wrapped up now.

MM: You said something about the Clean Air Act, and then the status changed to a Superfund site. I'm a little bit confused about the relationship between those things, what happened?

ST: Well, when the smelter was operating, it was violating the Clean Air Act, and so EPA was trying to get the smelter to meet the standards of the Clean Air Act. As soon as the smelter closed, it was no longer putting out that air pollution, but there was arsenic all over everywhere. The slag was leaching other metals. So, it moved from being a violation of the Clean Air Act, to something that fell under Superfund, which triggered the cleanup process. It was also identified as one of the sites that was heavily contaminated in 1985 in the first studies that came out when Tetra Tech identified all the areas around Commencement Bay that were contaminated.

MM: You mentioned that Asarco was dumping hot slag into the water. What is the environmental impact of that activity?

ST: The hot slag has all kinds of dissolved metals in it, and those metals, molten metals, included copper, zinc and probably not so much lead, but a variety of other metals that are bad for the bay. That hot slag was supposed to be dumped into a pit that was contained within the slag peninsula, which they did during the day. But my sailboat was moored right there, and if you were out there at night in the early 1980s, you could see them dump the hot slag into the bay, and that was illegal. They weren't supposed to be doing that. They were ordered not to do that, but they were doing it.

It was a wild and wooly time. At the hearings for the smelter, smelter workers were not happy about what was going on. You could get your tires slashed if you parked in the wrong place. I was careful about where I parked. And when we went to the hearings, there were people there who would physically intimidate us.

MM: Did you make a call, or did people make calls?

ST: There was really nobody to call. You could tell Ecology about it, but it was just one of many things going on that was not good. Those were years when a lot of not good things happened. There's a cement plant on the Thea Foss Waterway, which was then called the City Waterway, where there was literally an EPA investigation going on. One day an EPA guy was sitting out there watching it, and a guy with a big crane knocked him off into the water and broke his arm. It was a wild and wooly time. At the hearings for the smelter, smelter workers were not happy about what was going on. You could get your tires slashed if you parked in the wrong place. I was careful about where I parked. And when we went to the hearings, there were people there who would physically intimidate us.

MM: Because workers were worried about losing their jobs?

ST: Exactly, and very well paid jobs, and these were tough guys.

MM: So, you attended hearings?

ST: Oh yeah. I went to tons of hearings. I testified at hearings fairly regularly.

MM: You mentioned being careful where you parked. Did you fear for your own safety?

ST: Not really. I grew up in a logging family in Oregon, and I was used to dealing with people like that.

MM: That's interesting that you come from a logging family in Oregon and you became an environmentalist. So many people associate logging people or logging families with the opposite side.

ST: Logging was on both sides of my family; my one grandfather was a logger and owned sawmills, and my stepfather was a logger. Eventually, he became an environmentalist too, because he really felt he'd been duped. When the Forest Service said there was sustained yield of the harvesting of timber, he believed it. When he figured out that there wasn't really sustained yield, he became pretty unhappy about it. Like I said, I was always interested in water quality, and I've always been interested in fish and fish habitat since I was a little kid, but one of the logging issues that really woke me up happened after I went off to grad school in Chicago. When I came back in 1972 and climbed Mt. Hood, I couldn't believe the number of clear cuts I could see from the summit. I just couldn't believe it, and I knew there was an issue, but that really brought it home.

MM: Hearing you talk about going to those hearings makes me curious about the forms of hostility and animosity you may have experienced in the early years. Has that changed, and, if so, how?

ST: I think that people are much more able to deal with ambiguity and subtlety today then they were in 1980, and I think that people today really do believe that pollution causes problems. A lot of people believe things are better than they were. In many ways, I do too, but it was very black and white for people in the early '80s as compared to what it is today.

MM: You mean like, either we're for business or we're for the environment—that kind of black and white?

ST: Yeah, absolutely. The pollution isn't causing a problem versus the pollution is causing a problem. You know, I would meet people who had worked at the smelter who had lung cancer. They would tell me that the smelter didn't cause it. As a matter of fact, I knew the union guy at the smelter pretty well, and if somebody didn't show up for work for a while, he'd try to figure out why they weren't showing up for work. Very often he'd say he'd figured out that they had lung cancer, and they felt like they'd let the company down, that it was their fault that they had gotten lung cancer. To some extent it was their fault, because people who smoke have a much higher chance of getting lung cancer than people who don't smoke, and almost everybody at the smelter smoked. So, their chances of getting lung cancer were very high, but how do you sort out if somebody gets it faster because you smoked? So, there were lots of epidemiological studies done in those years.

MM: So, how did Asarco come to an end?

ST: They just announced that the plant was closing in 1985 after they opened the smelter in Hayden, Arizona. And Asarco was a very old smelter. It had been upgraded in some ways, but in many ways it was extremely dated, and I really do believe that they were just keeping it operating until they could get the new one going.

MM: What significant events or milestones illustrate the power or the function of citizens' groups to you and the work you've done?

ST: There were various pieces of legislation that passed that I think have been very significant over time. I mentioned those sediment standards. There've been various court

cases and/or records of decisions issued with regard to specific facilities that have led to cleanups and then have led to habitat restoration, which I think have been very important.

It's kind of beyond belief, seeing the rebirth of the waterway and condos getting built down there, and the shorelines getting re-contoured. That's been a major milestone. The city has gone from essentially turning its back on the waterway, to embracing the waterway as a place for people to be, and a place where people have done cleanups and plantings. It really makes me feel good.

I mentioned the various habitat sites. One big one, for example, is the Thea Foss cleanup. That used to be called City Waterway, and it is, to this day, the only Class C body of water within the state of Washington. That's the lowest quality water in the state of Washington. Because of changes in the way the Clean Water Act works, and changes in the way Ecology is now interpreting the Clean Water Act, they haven't reclassified that body of water, but it is so much cleaner today. It's kind of beyond belief, seeing the rebirth of the waterway and condos getting built down there, and the shorelines getting re-contoured. That's been a major milestone. The city has gone from essentially turning its back on the waterway, to embracing the waterway as a place for people to be, and a place where people have done cleanups and plantings. It really makes me feel good.

MM: Where is the Thea Foss situated on Commencement Bay?

ST: The Thea Foss is the waterway that's closest to downtown. It was the City Waterway, and then renamed somewhere in the late '80s or early '90s. Of course, Thea Foss was the woman who founded Foss Tug. The Puyallup River comes into the middle of Commencement Bay. That's Middle Waterway, closest to Thea Foss. The next one is called St. Paul. It's in the process of being filled with contaminated stuff from the Thea Foss, and it provides a little bit of additional land for the Simpson Tacoma Kraft operation.

MM: Why would they use something contaminated for fill on the St. Paul?

ST: Well, that's been a very controversial issue. You have to put the contaminated stuff somewhere. It can go to a landfill for up-wind disposal. It can get dumped out in the middle of the waterway. It can go into an inter-tidal area, or it can go into an area that creates solid land on top of it. Citizens for a Healthy Bay has argued that you don't want to dump it in the water, you don't want to put it in an inter-tidal area if you can avoid it, because it runs the risk of getting re-exposed. So, if you're not going to send it to a landfill, the next best thing is to put it in a contained place where you've got solid land on top of it, and those are the kinds of controversies that we've dealt with over and over. There are way too many hazardous waste disposal sites around Commencement Bay, but they are essentially there in perpetuity. That's the way they've cleaned up the sites that were exposed to the environment, and that was the place where both citizens' groups and government agencies had to say, OK, what's the most expeditious way to get this removed from the environment and contain it as best we can, and you know, there are people who are utterly shocked when they hear that those toxic sediments have not been treated, that

they've just been essentially contained, but that's what ultimately was chosen as the solution for dealing with Commencement Bay sediments back in the 1980s. So, anyway, that waterway is getting filled up with toxic sediments, which will be isolated, and then some new habitat made at the mouth of the waterway. There was a similar kind of project with Simpson Tacoma Kraft. The Puyallup River, which actually brings down clean sediments, has been channelized, but it's pretty clean. The waterway next to that one is called the Milwaukee. It's been filled in the same way the St. Paul was filled, and it's a major site for containers to be off-loaded today. The next one is called the Sitcum Waterway, and it has been cleaned up, but it keeps having this problem of getting recontaminated. It's getting better, but it's been a long problem, a long-term problem in the port, port offices sit right at the end of it. Then the big waterway is the Blair Waterway. Historically, it was pretty clean, and the Port of Tacoma is doing major expansions on it. That's a continuing environmental issue, but they're trying to run it as a clean operation and not re-contaminate it. The last one is the Hylebos, and the Hylebos had the highest rate of tumors in fish in the early years. It was very heavily contaminated.

MM: So, is the central issue, in regard to all these pollutants, the effect upon the ecosystem?

ST: It is ecosystem issues and human health issues—both human health in terms of consuming fish and human health from being exposed to the various kinds of sediments.

MM: In terms of attracting people to Tacoma, what kind of changes have you seen in Tacoma's economy?

ST: Well, you know, it used to be said that it was the smell of jobs, that what you could smell in Tacoma was the smell of jobs. As the heavy industry began to move out, for all kinds of reasons—many of them not environmental, but economic—Tacoma ran the risk of just being an absolutely dead city. For example, at the point between the Hylebos Waterway and the Blair Waterway used to be Tacoma Boat and Todd Shipyards, which employed over 2,000 people in the shipyard industry. Even before the environment started kicking in as an issue prompting regulations, the shipyard industry was disappearing in the United States. They went from having thousands of people employed to none. So, that kind of thing was happening at the same as people became cognizant of the significance of the environmental issues. Some industries were trying to figure out ways to continue operating at the same time they did their cleanup, and Simpson Tacoma Kraft was one of the industries that really got it and understood if they were going to be out there as kind of a focal point on the waterfront, they had to clean up their act, and they managed to stay in business and stay fairly profitable for a paper plant. They've also rebuilt their sawmill out there, and there have been some other sawmills that have rebuilt themselves and are still operating down there. And then, of course, what happened as many of these heavy industries went down, is that the port picked up the slack, and the port really grew to become, to a great degree, Tacoma's economic engine, and our concern, from the point of Citizens for a Healthy Bay today, is to be sure that whatever the port does, it is responsible for the future as well.

MM: Right, so instead of being a reactive citizens' group, you're being proactive, and sustainability has become your issue.

ST: Exactly. For example, in regard to the port, we've done a variety of requests for information about their planning. Of course, they don't particularly want to tell anybody,

because they're competing with the Port of Long Beach, and the Port of Oakland, and they'd just as soon keep their economic plans a secret, but we're saying, hey, if you're doing all this stuff that's going to affect the environment, you'd better be straightforward about telling us about it. So, there's a healthy tension there. There's a healthy tension between the city and the port in the same way, because the city wants to do what you might call gentrification, in terms making the waterfront better. At the same time, they've got the port doing heavy industry, so the city and the port have had quite a tension, and we tend to be a little bit in the middle. That's a nice place to be, because you can get the city to help us with the port, or the port to help us with the city. Groups like Citizens for a Healthy Bay in an urban environment are always walking that knife's edge, and, you know, you just want to make sure you don't get anybody so mad at you that they stop talking to you.

MM: In terms of supporting industry, the governmental agencies do the regulating. You have the port helping to bring new industry in and boost the economy in that way. Then there is your group. What would you describe as your direct relationship with industry?

ST: Citizens for a Healthy Bay has a good relationship with some companies, and probably a not-so-good relationship with others. It really depends on how much we think they're putting the environment and meeting environmental regulations, on the front burner versus trying to put these ideas on the back burner. If they're putting the environment on the back burner, they're going to be hearing from us. If they put it on the front burner, we're going to try to be supportive, and sometimes that, again, creates a level of ambiguity. You know, how can you say that so and so is doing a good job, when they may be doing a bad job here. Well, if they're doing a bad job in this other area, well then we're going to try and follow up on that. So, for example, there's a company on the Puyallup River that has a discharge into the river that is storm water, mainly storm water from their site, and is putting low quantities of pentachlorophenol into the river. In terms of their treatment facility, they treat the water pretty well. As for runoff, we felt that they were inadequately taking care of the problem. They had a permit that was pending at the Department of Ecology for their storm water, and the first Department of Ecology engineer who was working on it, we felt didn't really quite get it, and so we appealed the permit as it was going through the process. Ecology then, under pressure from us, improved it. We still didn't think it went far enough, but we were at least able to make things better. Well, the company isn't real thrilled with Citizens for a Healthy Bay or the other environmental groups that were involved in that process, and frankly, they were probably a few people at Ecology who weren't real thrilled either. Others were very happy that there was a citizens' group out there hassling them about making this permit better, but that's an example of how we work with local businesses.

MM: How would you distinguish the work of an environmental citizens' group from the work of federal or state agencies, such as the EPA or the Department of Ecology?

ST: Well, the agencies are responsible for implementing the laws, writing regulations and enforcing the regulations. In any regulation there's some level of discretion, and in any regulation, the emphasis on enforcement can vary. The regulation gets written, the permit gets issued, and how well an agency is able to birddog that permit can vary dramatically. We at CHB view our job as being a watchdog, both in the process of developing the regulation and then in the process of seeing how it's actually enforced. We also see our job as looking at places where there are no regulations, and trying to figure out what might be

applicable, or if there's a regulation on the books that's not really being applied to X, Y, or Z business, how do we get the agency to actually apply it. So that's one side of it. The other side of it is, we view ourselves as then telling the public what's going on and trying to get some public pressure behind it, and there have been many, many cases where the agency didn't think that there was necessarily enough public interest to bother holding a hearing. There are issues where they'll announce a hearing, and they'll be sitting there, looking at each other, and that's very depressing for the agency. It's also a waste of everybody's time, and so there have been a variety of issues where we've said, hey look, there really needs to be a hearing on this kind of storm water issue, and they'll say, oh, we don't think so. So we'll get people who call the agency and say, there needs to be a hearing, and after they hear a few phone calls and they believe us, they will hold a hearing. We then get 30 to 50 people at a hearing. We don't do that unless we feel there's a good reason for a hearing because, again, why should we get people out at 7 p.m. on a weekday, when they could be eating dinner, to attend a hearing. If it's some arcane little issue, we'll write a letter and make sure there's something in the record that says, we looked at this, and this is what we think the issues are, and if worse comes to worse, we'll file an appeal or we'll sue, and we don't sue very often. Citizens for a Healthy Bay is not a group that uses litigation very often. There are groups that do. We don't think it's the best way to be a long-term member of the community.

MM: That was my next question, "Have you ever brought suit?"

ST: We view lawsuits as absolutely the very last resort. We've been involved in a few, but if we get asked if we'll sign onto lawsuits, we generally say no. The other thing is we don't lobby. We don't lobby in Olympia. We don't employ a lobbyist. We generally do not take a position on pending legislation except in an educational role, which is something that groups like Citizens for a Healthy Bay can do and not in any way jeopardize our nonprofit tax status. We can spend up to about 5 percent of our money on lobbying according to federal code for nonprofit organizations, but we spend way less than that because we just don't lobby. It's a lot cleaner in terms of maintaining the advocacy role that we think we ought to maintain.

MM: So, what's the difference between educating someone and lobbying someone?

ST: In terms of educating, you're providing them with information about, say, a discharge or about enforcement of a law. In terms of lobbying, you're saying, we would like this law changed in this way. With Washington state Legislature, we have a very limited role. We have a little bit broader role with federal politicians, particularly federal staffers, where we will talk with federal staffers periodically about issues where we think maybe a law is not being enforced, where a congressman can help with EPA, but it doesn't happen very often. I'd say, once a year at most.

MM: What have been the more challenging issues for Citizens for a Healthy Bay over the years?

ST: Periodically, various people, various governmental people have not been fully honest. Sometimes it's just a matter of omission of information, if it's information that we feel should have been shared. Sometimes it's a matter of the agency or individuals in the agency not having the time to pay attention to information. We're all buried in information, but that has been frustrating when an agency hasn't shared something that they knew, when

there really was something that we feel we should have known. That's been frustrating. For example, the City of Tacoma discovered there was some dioxin contamination out of sight, in an area that was supposedly set aside as habitat, but they didn't tell us. They actually didn't tell EPA either, and a disgruntled employee told both CHB and EPA when he left the City of Tacoma. That was bad. We were mad.

MM: And the city doesn't look good.

ST: The city didn't look good at all. They didn't look good on the front page of the News Tribune, and it was on the front page of the News Tribune. The disgruntled employee had not only called us, the disgruntled employee left a message on the voice mail for the newspaper.

MM: In terms of the regulatory process, and you talked about this a little bit, in regard to NPDES permits and compliance issues, what are your main concerns?

ST: Cumulative effect. Too often an agency looks at each permit individually, and doesn't look at the cumulative effect of the whole bunch of permits. The Clean Water Act requires that TMDLs, total maximum daily loads, within a given waterway, be determined, and, frankly, Ecology has never quite figured out how to do an appropriate TMDL to really protect Commencement Bay. So TMDLs are a continuing issue for us.

MM: What has been some of the more interesting ways your work and dedication have been honored?

ST: Well, I was totally surprised in August to have a boat named after me.

MM: And which boat is that?

ST: It's called the *Sheri T*, and it's the Citizens for a Healthy Bay bay keeper boat, and they actually totally surprised me. They told me they wanted to christen it. So I show up, and I look around to see who's there, and I notice the President of PLU, and I was thinking, "What is he doing here?" Then my husband comes walking up, and I didn't expect him to be there, and I thought, "hmm, something's up here." At that point I expected they were going to hand me a plaque. Then they unveiled the boat, and it was named after me, the *Sheri T*. So, that was quite a surprise. And now, when people refer to it by name, I find myself surprised every time. So that was probably the biggest honor. I've gotten a variety of other plaques and recognition in the past, and it's always really nice and I appreciate it, but, in my opinion, I'm in the limelight way too much as it is.

MM: It's been an honor to talk to you, today, and I thank you.

Controlling Sources of Contamination at the Superfund Site

An interview with Kris Flint
November 9, 2004


Flint

Position held at time of interview:

Environmental Scientist and Remedial Project Manager for Source Control on Commencement Bay and Lower Duwamish Waterway, Office of Environmental Cleanup (Superfund), Region 10, Environmental Protection Agency

Education:

- Bachelor of Science in Oceanography, Florida Institute of Technology (now Florida Technical University), 1978

Maria McLeod: Kris, I'd like to talk to you about your work on Commencement Bay cleanup efforts as the remedial project manager. But before we get to that, what is your background and training?

Kris Flint: I grew up on the Great Lakes. If you look at Michigan as a mitten, I grew up right between the two knuckles on the little finger side of the mitten, on Lake Michigan. I've always been fascinated with water and weather, and I had the fortunate opportunity to go to a little engineering college in Florida, known at the time as Florida Institute of Technology. This gave me a strong engineering background, although my bachelor's degree is in oceanography. I graduated, came out here in '78, and started work with this agency in 1982. At the time, the key to federal service was to get your foot in the door, so, I started out as a lowly GS-2 Clerk.

MM: What's a GS-2 Clerk?

KF: Grade scale, or what we call GS, is a federal wage classification. The state has its equivalent as well. And the clerk was a, here-please-do-this person. As in, "Here, file this" or, "Here, distribute the mail." So I came to work in the Air and Hazardous Waste Management Division in 1982 as assistant to the docket clerk. At the time we, as an agency in Region 10, were working with the Centers for Disease Control (CDC) on two huge issues. This was before Superfund. The CDC was working on a big problem down in Tacoma with Asarco Copper Smelter and also on Bunker Hill over in Idaho. As a clerk, one of my duties was to assist another administrative person on filing for the rule-making dockets, which were administrative records for public and court review. So, after filing 75 bazillion copies of the most mundane memos, I transferred to EPA's Water Division in 1984. At that time, I began doing offshore oil and gas work in Alaska, and my job description—as most federal government job descriptions—included "other duties as assigned." In 1986, one of the "other duties assigned" was to work with a startup citizens' group known as People for Puget Sound, run by Kathy Fletcher. They were writing an educational public information booklet for an NPDES (National Pollution Discharge Elimination System) permit that was about to be reissued for the Simpson Kraft Mill on Commencement Bay in Tacoma.

MM: The pulp and paper mill?

KF: Kraft pulp and paper mill. At that point, I'd spent many hours on the phone with citizens explaining NPDES permits, and the permitting process in general to the public interested in the Alaska oil and gas permits I worked on. The public often doesn't understand exactly what it is they can comment on or why we respond to comments the way we do. So, that was one of the things I worked on with the People for Puget Sound, too. In fact, one of the first public meetings I actually attended in person when I was with the Water Division doing NPDES was one that Dick Burkhalter, with Ecology's Industrial Permits Section, held at the Simpson Kraft Mill. Anyway, after Ecology reissued the permit, I went back to doing my oil and gas work for 10 years. Then, in 1996, when all the Region 10 managers were meeting at a retreat and we were in the throes of one of the biggest reorganizations ever in the region, an old boss of mine happened to call and asked, hey, would you be interested in a job in Superfund? I said, "Sure, why not." So I joined Superfund in October 1996.

At that point, I don't think the Superfund program really knew what to do with me. I was a rare bird in that I had a lot of experience in other programs and working with other statutes. A lot of the Superfund remedial project managers (RPMs) hadn't ever worked anywhere but in the Superfund program. Working exclusively in Superfund can give people this very unusual view that other programs are relatively slow and loaded down with administrative details and are maybe not as effective as Superfund. For instance, other programs' regulations are explicit and very detailed about application completeness, how decisions must be evaluated or supported, public notices, and legal challenges. This kind of administrative detail is not dictated in as much detail under the Superfund statutes or regulations. So, I had a very different view of how we did work in the agency. How you grow up in the agency, working only in Superfund, or other programs, gives you a very different point of view on what enforcement is and how you need to work with other entities to get things done. So, because of my oceanography background combined with my water programs' background, the most natural place in the world of Superfund to put me was on the sediment site in Tacoma.

MM: You mentioned the NPDES permits. In the process of writing these permits, there's an opportunity for public comment, right?

KF: Yes. In the Clean Water Act of 1972, Congress in its wisdom said, no pollutants shall enter the waters of the U.S. without a permit, and, go forth and write these permits. These ideas were based on the Federal Water Pollution Control Act, which in turn goes back to the Rivers and Harbors Act of 1899. The basic process for issuing an NPDES permit, that's written under Section 402 of the Clean Water Act, is that the agency has 180 days to issue a draft permit, which shall include a fact sheet supporting technology-based requirements to protect water quality as well as standards-based requirements, requirements for endangered species, et cetera. Note: There are a lot of other statutes that can contribute conditions or requirements to an NPDES permit, so you write a draft permit and a fact sheet, put it out for public review and comment for a minimum of 30 days, longer if you feel it's needed. If somebody requests a public meeting and you decide to hold one, then you have to give another 30 days advance notice of the meeting. After you get public comments back, you're required to write a responsiveness summary. The comments can fall into one of two categories, substantive and not-so-substantive. If the comments require a

substantive change to the permit, then we'd write our response to your comment and issue the permit, but the permit would not become effective for another 30 days. So, let's say you have a very important, substantive comment, such as, there needs to be only one outfall instead of 10. As the permit writer I would say, "OK, here is my response to your comment and here is a copy of the final permit. Note that I either did or did not change the permit. Also note that we are issuing the permit on July 1st, but that it will not become effective until July 30." This gives you time to look at the statement of basis, decide if you agree with me and whether you want to challenge the permit or not. The key for the NPDES public process is that you can challenge that permit.

MM: So, citizens have a lot of opportunity to give input?

KF: Yes, and that's built into the permitting process and written in the Code of Federal Regulations. This is same administrative and procedural structure used for permits issued under the Clean Air Act, RCRA (Resource Conservation and Recovery and Act), as well as for other statutes and regulatory programs.

MM: OK, thanks for explaining all that. You mentioned that you were working with People for Puget Sound. Remind me, was that your first exposure to the issues at Commencement Bay?

KF: Working with People for Puget Sound on their booklet for the Simpson Kraft Mill NDPES permit was my second exposure to Commencement Bay. My first exposure was as assistant to the docket clerk on the Asarco rulemakings related to human health. I had worked on NPDES fact sheets and I was helping People for Puget Sound write the informational booklet for the public about the Simpson Kraft Mill re-issuance—that was the permit re-issuance that Dick Burkhalter, of Ecology's Industrial Section, was managing at the time. Then, 10 years later, I moved to the Superfund program and was assigned to Commencement Bay.

MM: When you were working on the Asarco Copper Smelter as a clerk, dealing with the dockets, I imagine, as a person with the background and education you already had at that point, it wasn't a passive experience for you to be handling those documents. Were you reading and thinking about those documents? And if so, what were some of your reactions?

KF: Well, there was a ton of information, so I wasn't really reading a lot of it in detail. I was watching people. I had worked my way through college selling books and I had come to suspect that I was probably more social and a little more service oriented than your run-of-the-mill engineer/scientist; so it was interesting to watch the government interact with people. I come from a very small town in the Midwest and I never really had an opportunity to observe people's interaction with the government, other than my Midwest parents and grandparents, saying, oh, the dang government, blah, blah, bureaucrats. So this interaction was completely new to me and fascinating to watch. At the time I came to work at EPA, I had one child and was anticipating a second one at some point. I remember being particularly struck by the study that CDC was doing on yard and household dust and children's behavior called "pica," where kids eat dirt, because my 1-year-old daughter would do that when we'd take her to the beach. She'd run down to the water, lie on her tummy, and start licking the sand. Meanwhile, I'm thinking, "Oh yuck, I'm glad we're way south of Maury Island." Maury Island was in the Asarco smelter plume and was one the places where health advisories were issued about gardening and soil contamination. So, the whole

idea of government interaction with citizens in regard to how we communicate information, how we express risk, how we think about risk, was really interesting to me. In those early days, as a brand new government employee, those were the things that probably drew most of my attention as all that information passed through my hands.

MM: What was the relationship with household dust and pica?

KF: CDC was conducting a study, which involved sampling household dust and yards in homes in Tacoma. We were establishing attainment areas at that time, under the Clean Air Act, and the whole idea of modeling an air shed was wonderful and new to me. So, there was a lot of activity with the state and county Departments of Health to determine whether the models were accurate and whether the human health risk assumptions were correct. The idea of body burden—somebody living to 70 years, exposed 24/7, or that children were at risk for developmental problems as heavy metals entered their systems through the pica behavior— this was a kind of thinking I had never really encountered before. For me, the ideas had been about a pipe this big, with this much flow and concentrations of X, Y, Z in the flow. In other words, I was coming from a kind of a physics/engineering view of the world toward a more human biology kind of view of the world.

MM: Did studies on households in Tacoma have something to do with Commencement Bay?

KF: Yes, it had to do with getting Asarco and Commencement Bay onto the National Priorities List (NPL). The studies and other information were used as support for the NPL listing. I came to the agency in 1982. We had a series of public meetings and then, in 1983, most of Tacoma went onto the NPL. In terms of the Superfund process and organizing all that work, we quickly started to divide this huge listing up into more manageable pieces. The Asarco smelter in Ruston was one, and the South Tacoma Channel was a second. The Tacoma Tar Pits and then all of the waterways of Commencement Bay Nearshore/Tideflats were the third and fourth major sites. All of these then got divided into smaller bits, which we call "operable units." So, in 1983 Commencement Bay/Tacoma was listed, and we quickly starting carving out these other pieces of work.

MM: Was the testing being done in the households related to particulates that were being emitted from Asarco?

KF: Yes. They were trying to get a handle on human health and how it had been impacted by what was coming out of the smelter stack.

MM: And Asarco was more an air quality issue, whereas the contaminants that were going into the bay were a water-quality issue?

KF: Air was the focal point, yes, but it became clear as we started looking around, that Asarco had slag they'd sold all over for paving. If you're filling in a wetland or estuary, which is what Commencement Bay Nearshore/Tideflats was, you're going to get the cheap stuff, such as slag, for fill. In fact, it's characteristic of all of the peninsulas between the waterways that there are layers of wood debris, Asarco slag and asphalt, often followed with more wood debris, Asarco slag and asphalt. So, Asarco slag was found all around Commencement Bay. At a later point during the later 1980s and early 1990s, EPA negotiated a Superfund Consent Decree, which was filed in federal court with Asarco where,

if we found signature contamination in yards or at other sites, Asarco was to dispose of it and pay for those yard cleanups. They also were on the hook, so to speak, for locations where we found characteristic Asarco slag throughout Commencement Bay. There were cases where log transfer facilities were completely paved with slag.

MM: Log transfer facilities?

KF: Right. A log transfer facility is where logs are stored, sorted and shipped out. Sometimes bark is also removed at these facilities. One example is when a log yard on the northeast side of Hylebos Waterway, toward Fife, was completely paved with Asarco slag. Now, if you have metals in slag, the last thing you want is to put logs on top of it, because as it rains on the logs, the acidic runoff from the logs gets down into the slag and will leach metals from the slag right into the sediments and water.

MM: Like a tea bag?

KF: Exactly. Asarco was the beginning of a lot of things—for instance, health and environmental studies, cleanups, et cetera. Imagine dominoes set up in a ring around the middle, which, in this instance is Asarco, with these radii, representing other projects and studies, coming out from the middle.

MM: So, when they started conducting tests in Tacoma on household dust, was it the Health Department conducting the studies?

KF: It was pretty much everybody.

MM: Everybody? What do you mean, other agencies?

KF: Well, there were the Centers for Disease Control, a separate federal agency from EPA. Then there was ATSDR, the Agency for Toxic Substances and Disease Registry, which helps EPA with assessment of human health and risks. And then we had the Public Health Service and all of the county departments of health, State Department of Health and EPA. Those were pretty much the key players of all the technical groups looking to find out what was going on. Now, that list does not include the graduate students and researchers that these projects always seem to attract. I seem to remember there were folks from the University of Washington who were also involved with several types of studies.

MM: What pollutants were they actually finding in these homes?

KF: Metals, mainly—arsenic, cadmium, mercury and lead. There's a particular ratio of those metal concentrations that was important. Remember, when I mentioned characteristic Asarco slag? There is a particular ratio of one pollutant to the other that pinpointed the source. It's almost like a fingerprint for Asarco slag based on the ratio of metal concentrations to each other.

MM: So, you're able to trace back exactly what entity the contents of the dust came from by the proportions?

KF: Right, and we've done that in sediments with another source in Tacoma known as Occidental Chemical. They were there on Hylebos Waterway for years and years and years, and they generated a particular soup of chlorinated organics. So, if you find certain

chemicals in a particular ratio—that's known as "Occidental sludge," and they were named as the Potentially Responsible Party, what Superfund calls the "PRP."

MM: You mentioned something earlier that we've passed by, which I'd like to go back to. You mentioned as an RPM for Commencement Bay, you do source control. Could explain what that is?

KF: Oh, what's source control? Well, when you have a Superfund site, what is the first thing you do? You control the source of contamination to make sure that when you clean the site up it doesn't get dirty again. Basically, that's all source control is. If you have a classic Superfund site—now this goes back to 1983 when Superfund was first conceived—we have this great little box or fence around an industrial site, let's say it's "Haywire" Aluminum. What Haywire Aluminum did or does inside that box is probably the source of the problem you're planning to clean up; let's say that it's contaminated groundwater. So, for instance, it's very easy to make cleaning up the ground water part of the actual remedy. It's also relatively easy to make cleaning up the air from the stack emissions part of the remedy. Likewise, cleaning up contaminated soil on the site would be source control for the remedy. But now I challenge you to move forward in time from 1983 as EPA begins to list big sediment sites like Commencement Bay Nearshore/Tideflats. We no longer have a neat'n'tidy, single source facility with a box around it where all of our Superfund work is going to be done on the site and where we can borrow the good bits from NPDES, groundwater protection regulations and from the Clean Air Act, and apply them as ARARs (Applicable or Relevant and Appropriate Requirements) to control a single source. We can't do that anymore because we have multiple sources, with multiple problems. In short, we have an entire watershed.

MM: You're talking about Commencement Bay?

KF: When we're talking about Commencement Bay and other urban/industrial sediment sites, we're really talking about drainage basins to every one of those waterways, and the total of all that's going on in those drainage basins is the source, per se, to those waterways.

MM: So, you're talking about water coming in from outside Commencement Bay, outside of Tacoma, maybe to the east?

KF: Luckily, to the east to north, the drainage line generally follows the top of the bluff alongside Marine View Drive and watersheds from that line into Hylebos Waterway and Commencement Bay, depending on what point you're looking at on the map. Along the south and west of Commencement Bay, the drainage line generally runs along the Hilltop and back along the I-5 corridor toward the Tacoma Mall. Drainage from this area tends toward Thea Foss waterway, and again outer Commencement Bay, depending on what part of the map you're looking at. If you look at your hand, Commencement Bay waterways would be the areas between your fingers. Hylebos Waterway is 3 1/2 miles long, and there's a big bluff that breaks up the drainage to it. Hylebos is a pretty small drainage basin, actually. Our biggest drainage basin is Thea Foss Waterway, a much smaller waterway, but with about 6,000 acres of storm water drainage into it. Just for comparison, in the Lower Duwamish Waterway site we have between 20,000 and 25,000 acres, or 32 square miles, of source area.

MM: Agricultural sources, too?

KF: Well, more agricultural early on, since the area has been industrialized over time. Source control is kind of like solving a mystery. Within Commencement Bay, you have different kinds of contamination in each of the waterways. The mystery is, where in the heck did it come from? Well, if it's Asarco's characteristic metals you find here and there, you pretty well know that's where they came from. Or if you find a patch of Occidental sludge, that's pretty characteristic, and the source stands out like a sore thumb. But what about things like, oh, just general PCBs, which we had on Hylebos, but not so much on Thea Foss. Where are the PCBs coming from? So you've got to look at all of the properties around the waterways, find out what their history is, not just who's there today, but who was there five years ago, 10 years ago, 100 years ago. In Tacoma this has been kind of fun in a very funky way. I love this historical sort of inquiry that we go through to find sources.

Source control is kind of like solving a mystery. Within Commencement Bay, you have different kinds of contamination in each of the waterways. The mystery is, where in the heck did it come from?

MM: What do you do? Do you look at public records as to who owned what?

KF: You start with the public records. You look at all kinds of records in different agencies like EPA, Ecology, health department, clean air agencies, et cetera. You look at deeds, tax records and property transfers. You go to the museum or library and look at the old newspapers. We had a fascinating case at the head of Thea Foss Waterway. We started with a very strange profile of hydrocarbon contamination in the sediments at the head of Thea Foss waterway at depth. Not up near the surface of mud, but deep. It looked, to my eye, as if it were three-dimensional. If you picture a three-dimensional shape, like those headache commercials that show the brain in 3-D, the shape of high contamination in the sediments near the shore looked something like a sunken sailboat hull. From the source control point of view, we were asking ourselves, what on Earth could have caused that? This shape was located up by the old Tacoma Coal Gas at the head of the waterway, which, for a long time, bled all kinds of awful heavy polyaromatic hydrocarbon compounds—stuff that loves to hang around forever in the environment—into the waterway, but the distribution and shape of high contamination at depth didn't make sense. The old facility hadn't had discharge pipes there. The puzzle pieces we had weren't fitting together. And so, we scratched our heads. Then Marv Coleman, who is a project manager with Ecology's Southwest office, and I went to a meeting where someone who knew we liked old photos, brought a photo from the early 1920s or thereabouts, featuring the head of the Thea Foss Waterway. And there, on one of the old tanks in the background—the skinny tall ones with the funny little hat on them—was this name, "Standard Chemical." I looked at Marv; Marv looked at me, and I said, "I don't remember anything about Standard Chemical. Do you remember anything about Standard Chemical?" And Marv said, I need to check this out. So he checked and, low and behold, there was this little tiny operation next to the Coal Gas plant that had recycled asphalt around the time of the First World War. They made "tarmac," which was a kind of predecessor to the more sophisticated asphalt we recognize today. Their product was made of waste oils and tar-like stuff from shingles. Anyway, they once had a fire, which burned down their wharf, where these old tall, peaked tanks were sitting, full of all of these hydrocarbon contaminants. And guess what happened?

Suddenly, our hydrocarbon contamination profile in the sediments was making a whole lot of sense. Discovering the real source of the sediment contamination also made sense of data we had for contamination in the banks and upland as well. But we didn't discover that source until we had been working with the Tacoma Coal Gas parties for a long while, trying to get that site cleaned up under the Model Toxics Control Act. It was one of those Ah-ha! moments that sometimes happen in source control.

MM: So then, who pays for the cleanup?

KF: Well, as it turned out, there were no funds from the successor company to Standard Chemical, so funds for that cleanup wound up coming out of the state's Clean Sites Fund.

MM: That's really fascinating.

The size of the problems, the sheer physical scale of the mysteries you have to solve, is just overwhelming at first. But you have to start somewhere; so you start by cutting it up and organizing the work into little pieces.

KF: Source control is like a big mystery, and it's fun to solve, but source control for sediment sites like the waterways in Commencement Bay begins with knowing where you have problems that have already been identified within this huge, massive area. The size of the problems, the sheer physical scale of the mysteries you have to solve, is just overwhelming at first. But you have to start somewhere; so you start by cutting it up and organizing the work into little pieces.

The basic process starts when you list a sediment site on the NPL. You do a remedial investigation, then, somewhere, there has to be a division of labor in order to get all of the work, including source control, done. Here is where the process of source control can start to be confusing.

At sediment sites, what happens is that EPA/CERCLA sits down with the state—in this case, Ecology—and says, "Here's how we're going to split the work. Ecology, you do source control for the sediments, and we, EPA, will work in the waterway." We formed a team as we did source control in Commencement Bay. This took place for Commencement Bay during the very early days of Superfund when there was funding available; we funded Ecology for source control with a Cooperative Agreement, a kind of interagency grant. The Urban Bay Action Team (UBAT) in Ecology's Southwest office was the result, and those folks came up with some way to conquer, or organize, this immense amount of work for source control. What we did was write a strategy that said, OK, there are five levels of work that Ecology will be doing. You'll give us a list of where you think we've got sources or problems and where we don't, and you'll loosely prioritize them as either definitely not a source, maybe a source or a confirmed source. You'll list them 1, 2, 3, and you'll give us that list, which will be known as Milestone One. Milestone Two will be actually going out, doing inspections so you can tease the big ones apart from the smaller ones.

MM: Discerning big problems from the smaller problems?

KF: Right, discern the obvious and ongoing, big sources from the not-so-obvious or historic types. It helps to sort out the sources you can actually do something about versus

the sources we'll have to keep working on. So, there are things you can do for source control that are administrative; then there are actions that are more physical. For instance, you can dig up the dirt, you can put in a pump and treat to clean up ground water, or you could reduce the pollutant concentrations in an effluent discharge. Then you have the administrative controls. You could put somebody under an order to get a problem cleaned up, or you can issue a water-quality permit or order to enforce. For example, if we're talking about a Leaking Underground Storage Tank (LUST), that might not be a direct source to sediments but that might be getting into the storm water and causing sediment problems in the long term. You need to get it cleaned up, maybe not immediately, but sooner or later you'll be cleaning it up either voluntarily or under an order because it's a source control for storm water, which is subject to a NPDES permit. So, that's an example of the administrative work for the lesser sources. Putting those administrative things in place is part of Milestone Two. Milestone Three is getting all of the major tasks, the real source control actions, done. Examples would be getting your industrial yard regraded to collect storm water and treat it; getting all the PCBs in buried auto fluff dug out of an intertidal beach and a clean cap put on it; or getting a groundwater treatment system to work. Milestone Four is taking care of all the little issues, such as follow-up inspections, checking out new businesses that have moved into the area since the source control process started, checking to make sure that the remedies or controls you put in place awhile ago are still effective or meeting their intended purpose. And Milestone Five is the final report on all the source control we've accomplished.

Now, as of 2003, we are done with the first round of source control, the five-milestone process that had to be done for every one of the eight separate problem areas in the Commencement Bay Nearshore/Tideflats. The problem areas were two in Hylebos Waterway, three in Thea Foss Waterway, Sitcum and Milwaukee Waterways, both owned by the Port of Tacoma, the St. Paul Waterway, still owned by Simpson Kraft Mill, and finally, the Middle Waterway. So, each of these had their own specific mixes of sediment contamination, like a painter's palette, so to speak, of chemicals. The waterways were very different from one to the other, and our job for source control was to look at the sediment contaminations, find out what the sources either were, either in real time or in the past, and to figure out the best way to control them.

MM: In terms of the engineering and how things were cleaned up, you used the expression "capping a site" as one of your remedial actions. What was the other physical work done to capture those contaminated sediments?

KF: In 1989, EPA wrote the Record of Decision, which is a huge, thick document. I referenced that the site was listed with the NPL in 1983, and we split it out into its various pieces. For the Commencement Bay nearshore/tideflats, we wrote our Record of Decision in 1989 and what that did is report on the additional sampling EPA and Ecology had done since the 1983 NPL listing. This is called the "Remedial Investigation," or "RI" phase. Let me back up and explain the Superfund process from the start. You do a site assessment, you decide if you've got a problem, and whether it goes on the NPL list or not. Next, you do a Remedial Investigation/Feasibility Study. This phase gives you more detail about your problems and an idea of what we could possibly do about them. As a result of the RI/FS, we write a Record of Decision, which basically says, "Here's what we think we might do based on the way we see these problems." I like to compare the ROD to the menu bar on your computer screen. The Record of Decision shows a kind of drop-down list of all the ways we

might solve these problems. In general, however, this is not an exhaustive, complete summary of our options by any means, in that it does not show all possible combinations of the different kinds of things we could do to cleanup sediments. So, about the cleanup options and your question on capping, one of the things you can always do is dig it up and take it away, but then what would you do with the void you've created? You're going to have to fill it in, so this brings us to the process of dredging and filling with clean fill. That's one option. You can also take away some or most of the contamination and put a real thick, clean cap back on top of the area. This kind of capping is favored where it might not be possible to remove all the contamination because one of the big goals of sediment cleanup is to bring back benthic and other habitat value to the waterway.

MM: What kind of value?

KF: Benthic. That's a reference to the critters that typically live in the top 10 centimeters of sediments. We also call that the "biologically active zone." The benthic critters are the ones that support the rest of the food chain. So the whole point is to get them happy and keep them happy; then other things are going to start happening, too: for instance, the salmon juveniles will hang out there, the birds will hang out there, and so on and so on. We also consider those to be areas with different kinds of value—where you have human access for subsistence or for recreational use, that type of thing.

At the end of all of this, it all comes back to the concepts of biological activity and making an area healthy. So, how do you do that? As I said, pick the contamination up and take it away, remembering that, if you take it away, you've got to fill back in because you don't want to lose habitat. You can dredge it, and take it down, and then put a thick clean cap on it. That's what I mean by "capping."

I spoke earlier about dredging contamination and taking it away. What if you didn't want to take it away very far, or you didn't have a place to take it? You could build a confined disposal facility (CDF) which is a place either adjacent to the shore or in an offshore area where you take the dredged material and put it. In a confined disposal facility that is near shore, typically you'll put a berm across the front of an embayment or other shoreline feature and fill it in. The habitat on the seaward side of that big old berm is happy habitat, while the contamination on the other side is being kept away from the environment. Commencement Bay examples of CDFs include the St. Paul Waterway that will take contamination from the Foss cleanup. The Sitcum Waterway was also cleaned up this way, and they filled in Milwaukee Waterway as a CDF.

Now between 1989, when we wrote our first Record of Decision and 2000, what happened was, we sent out letters to all of the PRPs (potentially responsible parties) around the different waterways basically saying, "Hey, we have a cleanup and we would like you to participate." So groups formed around the waterways to do pre-remedial design and pre-remedial action sampling. Again, getting more detail and specificity about the nature and extent of contamination, figuring out the likelihood for recontamination if you did this, that, or the other thing as a remedy. They all came up, as you might expect, with various answers affecting source control in many different ways, interacting with folks at UBAT and other agencies that have roles in source control.

In the year 2000, we had finished most of the pre-remedial design stuff, so from our drop down menu of general things that we might do from the ROD, we began to say, OK, we have

natural recovery over here, and we're only going to have to do dredge and cap over here, and now we've got to dig this bank out, and so on. So in 2000, we wrote what is called an Explanation of Significant Difference (ESD) to the ROD. It means, in addition to our Record of Decision, we now had much more specific ideas of exactly what the remedy for Thea Foss is going to look like as opposed to the remedy for Hylebos. The generalities we mentioned in 1989 had become pretty specialized for different waterways in 2000.

MM: So now we know, in terms of sediments, what the EPA does. What is Ecology's cleanup responsibility?

KF: OK, the answer is all about your point of view. If you're Superfund with a sediment cleanup point of view, all you've got to deal with is yourself. Everybody else gets to be informed and have a role, certainly, and can give you input, but there's a different feeling of being in charge if you're already "in" the sediments and dealing with cleanup issues. You wear a kind of blinder when it comes to timing and controlling outcomes. If you're Ecology, with that source control point of view, it's different. Remember that those EPA/Ecology agreements about dividing work were cut with the Toxics Cleanup Program. These are the people who mainly do work under MTCA, which is the state's parallel program to Superfund, and not typically working under other programs such as NPDES or RCRA, which are also means of controlling sources. I think at the time the overall source control strategy was written for Commencement Bay, the people in Superfund didn't get that true source control was about a building partnership of all regulators and their regulations with the tools available for doing source control. There was simply more to it than originally envisioned. I mean, one of your sources might be storm water.

So, the key question was, who are you going to need to get to come to the table to talk about the storm water permits? Would the NPDES permits even be the only method of storm water source control? Another of the sources to the waterway could be groundwater. So, what groups handle groundwater, what statutes are applicable? Source control brings many different programs, many different kinds of expertise to the table.

MM: And how is the Model Toxics Control Act related to CERCLA?

KF: They're kind of on a parallel. MTCA is this state's parallel to Superfund, with a cleanup only sort of focus. It doesn't really care where the mess came from, and MTCA is cool. I love MTCA because it has potential and can get to some things that we can't under Superfund.

MM: And what's that?

KF: Well, a long time ago, there was a congressional lobby from the oil industry that somehow managed to get themselves exempted from RCRA and Superfund laws and regulations. But MTCA doesn't have the same exemption. So, at the mouth of Thea Foss Waterway, for instance, there's an oil storage and transfer tank farm we called "D Street Petroleum." It was a very old tank farm, from way back when, that had been owned and operated by, I swear to heaven, every major oil company since 1940. Well, over time they had contaminated groundwater, which is not a big surprise. They had contaminated ground water to the point where Thea Foss sediments were getting these beautiful blobs of goo. They looked like blown glass—you know, when the guy blows in the tube and this bulb comes out—they were beautiful, amber-colored and lacy, and yet they were horrible. Well,

MTCA came in and said to the responsible parties that were still financially solid, you have a problem and you need to clean it up under MTCA. So, the solution was to start pumping and treating the product from underneath that whole area of the Foss and the peninsula between the Foss and Middle waterways. For a while they had an NPDES permit allowing them to discharge the cleaned-up groundwater to Foss Waterway and Commencement Bay. Eventually they got groundwater clean enough so that they could add the clean water straight to the City's pretreatment system. That cleanup was a huge success for source control.

MM: I'd like to go back to something you mentioned regarding a kind of classic Superfund site, where the work you had to do was really defined by the site boundaries. You talked, hypothetically, about putting the fence around a site. Can you tell me why that kind of approach didn't work, why it went out the window, at Commencement Bay?

KF: That hypothetical example goes out the window because when you are working on an urban sediment site, you have to focus on the sediment problem. That is why a division of labor, source control from sediment investigations/cleanup, is so important. In this EPA region we give the lead for source control part to the states. The state has got to figure out if sources are historic or ongoing. Then they have to figure out the best tools to control the sources. Now here's a wrinkle, which we came to realize late in the day at Commencement Bay, and that is that the state's Toxics Cleanup Program, MTCA, doesn't always have the power to do something about the sources they find. Sometimes the source they found would be better managed under RCRA programs. Sometimes the source they found would have been managed under NPDES or other water-quality programs. Now, in the days when we were funding Ecology to do source control work, it was a relatively easy thing to coordinate with the Water Quality Program—for instance, to go them and ask, can I get your attention to this NPDES permit, please? We need a special condition because . . . But as time passed, and as EPA stopped funding Commencement Bay source control, we also got to the point where we began realizing there was still a lot to do with fewer resources. For example, we realized that the city was responsible for storm water source control under the NPDES permit, but that the many separate tasks of source control work were spread out across the organization. So, for Foss storm water, the work "belonged" to the city in its control, not to Ecology programs. Well, since the city was obliged to do storm water source control, we created a source control team for Foss and the city that is the key player. They're required, under their Phase I NPDES permit for storm water, to have a storm water management program "SWMP," and one of the things the city's SWMP requires is that they have ordinances that allow city storm water people to inspect properties and to make technical recommendations that will enable people and businesses to stop putting contaminants in the storm water, which the city then conveys to the waterway. So, we had to bring the city on board as part of the regulatory chain-of-command in order to control sediment sources via municipal storm water.

Sometimes we run into entities like the Department of Transportation who think they're, I don't know, some kind of authority unto themselves, and they just decide that they're going to build a storm water pond. Meanwhile, I'm thinking, "OK, did you bother to tell anybody you hit a pool of creosote when you were digging the pond? Why not? That's a problem." So, we had to bring DOT to the table for source control. We have areas that drain to Thea Foss that are DOT dumps, where DOT has been putting street sweepings for years and years and years. The source control problem with these is the toxic leachate that's coming out of

that dump that's going into the storm water system and into the head of the waterway. Who's responsible for permitting those? Tacoma Pierce County Health Department. So, we brought them to the source control table and the team, too.

So, the challenge is figuring out where all of these delegated authorities and authorizations by different permits have come to roost, and who does what. It's a bit like herding cats. You've got a bunch of cats and your job is to be out here in front of the herd, snapping your fingers and getting everybody to look at your can of tuna fish. The common goal, otherwise known as the "tunafish," is to keep the sediments from getting dirty again. As the person who has to coordinate all of this, or "Chief Cat Herder," the idea I keep reinforcing is this, "You all aren't really that different. I know you all like to be individuals, and as Chief Cat Herder, I will honor that, but you know what? We're all here to do more or less the same thing." So, this is a lesson that we learned, in spades, particularly on Thea Foss Waterway. The Thea Foss storm water source control team met every six weeks for five or six years, with all these different guests coming into the group. Yes, we needed to have Pierce County Health here while we were doing a site investigation in a given storm water basin, or while we were working with the vaults of dangerous waste that DOT scooped out of the old coal gas site when they put the Tacoma Spur in. For seeing the big picture, it helps if you're interested and curious enough to follow the convoluted path of how authorities get delegated or passed along from federal-to-state-to-local levels. You just have to stick with it a little bit, and then you have to like cats a lot in order to herd them all in the same direction.

So, the challenge is figuring out where all of these delegated authorities and authorizations by different permits have come to roost, and who does what. It's a bit like herding cats. You've got a bunch of cats and your job is to be out here in front of the herd, snapping your fingers and getting everybody to look at your can of tuna fish. The common goal, otherwise known as the "tunafish," is to keep the sediments from getting dirty again.

MM: The other part of this that I think is unusual is that usually when you see Superfund sites, when someone points out a Superfund site, you can kind of see its boundaries, but at Commencement Bay . . .

KF: It's a watershed. That's why source control for big urban industrial sediment sites is very different from the classic site, and why we are very different on this side of the country from the Hudson River, where you typically have a few smoking guns—big, steady, obvious sources.

MM: You're talking about multiple industrial sources, historic multiple sources that we have here versus along the Hudson River or Chesapeake Bay?

KF: Well, on the Housatonic and the Hudson Rivers, the sources were pretty much large, single and steady—easy to identify over a period of time. For PCBs, which are a problem there as well as out here, the date of entry into the environment is around 1929. What we have out here for sources of PCBs—I'll use Duwamish Waterway as a more current

2002 sediment site cleanup of Commencement Bay's Thea Foss Waterway.

hypothetical example—is about 6 miles of river that was farmland into the 1930s when little bits of farms started to get sold off to the Mom and Pop's Paint shops. Over time, Mom and Pop's Paint may have grown and been followed by somebody who noticed Mom and Pop's Paint used and emptied lots of barrels. So, they decided to get into the business of burning the paint out of the barrels, or tossing the barrels that couldn't be recycled anymore. As the second business grew, they started taking in barrels that had contained used and waste oils with PCBs. As a result, we'll often see that the nature of pollution sources shifts over time from simpler, and perhaps more agricultural, toward being more commercial and industrial. On Lower Duwamish Waterway, we have a facility where they invented the glue that made plywood possible. Plywood glue was invented here in Seattle, so imagine the wonderful stuff that got into the sediments at that time. In contrast to the back East examples I gave, we tend to have many smaller, diverse sources of similar contaminants. You end up becoming a walking encyclopedia of these chemical mysteries. If we had, for example, a meat rendering plant on the waterway, we'd question what sort of thing we'd expect to see in the sediments today if that occurred seven, eight years ago, or 100 years ago. That's what controlling sources in a generalized urban industrial area is about. If you look at Commencement Bay, specifically at the Thea Foss as opposed to Hylebos—they're very different in the nature of their ongoing sources, but historically, they're not all that different. There was a steam plant on Hylebos and there were a couple on Thea Foss. Foss had the Tacoma Coal Gas and Standard Chemical, whereas the Hylebos had Kaiser Aluminum, log transfer facilities and Occidental Chemical. On Thea Foss, however, we have storm water that isn't even a blip on the radar screen of ongoing sources for Hylebos Waterway.

So, actually controlling sources is about keeping an open mind to all possibilities, dividing them down into short, doable lists and figuring out which list goes where. Is this NPDES? Is this RCRA? Is this UST/LUST? Is this Air? It is convoluted. You must figure out whether a source problem is something you can solve, or is it enough to know you probably can't solve or control it, and figuring a plan to go on with. That's sort of like the serenity prayer, give me the grace to understand the things I can change, recognize the things I have to work around, and the wisdom to know the difference.

MM: Did your oceanography background give you a special sense or a special knowledge of the waterways in terms of what's below the surface, especially in regard to how pollutants get deposited?

KF: It's been a long time since I took fluid dynamics or structures, but my background in physical sciences does give me a better idea of what makes sense. If somebody has hired consultants and they make statements or reach conclusions that don't make sense based on what I happen to know about marine chemistry or the way deposition happens, I'd look at that party's technical documents for remedial investigations and pre-remedial design, and

be asking if the reports made sense. Does the idea have merit? Does the emperor have clothes? For example, the head of Thea Foss Waterway is a sink in terms of physics and chemistry—what goes in doesn't always come out at the head of Thea Foss Waterway. Circulation causes water to hang out at the head of the waterway, and that's why it's predicted to re-contaminate. It's a bad place to be pouring storm water from nearly 6,000 acres because it isn't going to get all the way out to the mouth before some chemicals settle out of water column or sorb to sediments. So, because of my background, I look at the reports and question what makes sense. It's about trying to make the most sense you can out of the information you have. You have to understand everybody's going to have a different way of explaining the same thing; so, you have to give credit for that, but in the end you have to be able to distill the work, the reports and conclusions down to answer, "Where is this going?"

MM: You mentioned the Thea Foss, but I'm curious, are there other unique features, physical features of Commencement Bay waterways that make it an especially receptive environment to receiving these pollutants and not disbursing them?

KF: Yes. For instance, Hylebos Waterway is 3 1/2 miles long with kind of a bend in it. It has no flow to speak of, or at least no large flow like Foss, at the head. It takes about 72 hours for a mass of water to move from the mouth to the head—three days—which means that, by the time that it gets to the head of the waterway, there's not a lot of dissolved oxygen left, which makes it kind of tough for the benthic critters hanging out at the head of the waterway.

MM: Right, and aren't those waterways man-made?

KF: Hylebos is man-made and Blair is entirely constructed, as is Sitcum. Milwaukee, Middle and Thea Foss, which are on the city side of the Puyallup River, all seem to follow some kind of original flow path from the natural delta of the Puyallup River, but the ones on the Fife side of the river are almost all constructed.

MM: I imagine, at the time they were constructed, people weren't really thinking about a lot of these environmental issues in terms of water flow?

KF: Who knew in 1880? Growth and economic development were the focus, not environment. The quickest way to build space for more jobs was to use the tideflats, get some cheap ballast from Asarco, layer it up with logs and asphalt to make it all stick together so that you could put a brass foundry or whatever on it.

MM: And the elements that they were working with in terms of pollutants hadn't been around long enough to see the long-term effects. The technology for the testing didn't exist.

KF: Again, who knew? You know, we just recently reviewed a fact sheet for People for Puget Sound who are writing about source control for the Superfund site in the Lower Duwamish, and the person writing it is from an East Coast state, a state which has a very different environmental view from ours. One of my comments back to this individual was that it's not a bad thing to be righteous in your concern that there shouldn't be any contamination getting into this river at all. I agree. However, let's look at this from a different point of view and with a different kind of balance. Using PCBs as an example, let us agree that PCBs arrived on scene in 1929, and realize that by 1932, they were widely used

for suppressing dust in agricultural practices and unpaved industrial areas or roads. So, think about what we had around the Lower Duwamish at that time. We had dirt roads. We had unregulated community dumps and landfills. What were in the dumps and landfills? Barrels of waste oil with PCBs, plus it was common practice at the time to use waste oils, often with PCBs in them, to keep dust down on the roads and the developing, but unpaved, industrial properties. Now, let's also remember that we didn't begin to regulate PCBs until 1976. In the bigger picture, we also didn't have RCRA in the 1930s. We didn't have the Clean Water Act until 1972. Before then, predecessors to the Clean Water Act were mainly focused on preventing oil spills and controlling dredging and navigation, mostly Rivers and Harbors Act types of activity. With respect to cleaning up sediments, not knowing the history of sources is not exactly anyone's particular fault. Most importantly, it's work that has to get organized and done.

With respect to cleaning up sediments, not knowing the history of sources is not exactly anyone's particular fault. Most importantly, it's work that has to get organized and done.

So we have sites like the Duwamish and Commencement Bay, where we have inherited a history of contaminant sources. Even if a cleanup site does re-contaminate at some point in the future, we're doing a huge, huge environmental favor because re-contamination won't be with the same mix of stuff, it won't be coming from the same sources, and, if I have anything to say about it, it won't occur at the same levels. Just look at how things have changed since those statutes happened—our whole view of human health risk has come so far in the last 25 years.

MM: So tell me, what's left to do at Commencement Bay? Who's doing what, and when will it be done?

KF: For source control in general and ongoing sources in particular, we started work in 1992 with the Source Control Strategy, which we wrote and we funded with Ecology through 1999. They, Ecology, controlled the major sources and continued to "mop-up" the last odds and ends sources. Then in 2003, we got the last, final Milestone Five report on the last problem area, which was, ironically, the head of Thea Foss Waterway. So, source control

Commencement Bay's Thea Foss Waterway, 2004.

was at that time "done" according to the way it was defined in that 1992 strategy. Now, EPA is in the throes of finishing the sediment cleanups. They did the head of Thea Foss Waterway this last spring, and started the banks, and they're doing the rest of Thea Foss Waterway this fall and next summer and fall. Sediment cleanups can take awhile because we work around fish windows roughly between February and June. You can't dredge because of endangered salmon species, upsetting them if you're in the water then. A fish window is closed during this time when in-water work is not allowed. Middle Waterway was cleaned up last fall, 2003, and Hylebos Waterway is in the process of being cleaned up last year, this year and next year. Then we will be into the long-term maintenance phase of the Superfund process. Sitcum was cleaned up in 1994, and St. Paul before that, because, although Sitcum and St. Paul were identified as being about equally contaminated as the rest of the waterways in the Record of Decision (ROD) in 1989, they were smaller and easier to clean up quickly. Simpson Kraft Mill began working on the St. Paul cleanup even before we had the ROD finished. They did a voluntary cleanup, dredging the St. Paul for capping, and filling the Milwaukee as a confined disposal facility.

MM: What will it take to de-list the Commencement Bay waterways?

KF: We're often asked whether the Commencement Bay waterways and sediments will ever be de-listed from the NPL so that they wouldn't be Superfund sites anymore. The short answer is, yes; but as you may've guessed, the short answer tends not to be the complete answer for big Superfund sediment sites like Commencement Bay. It's an involved process, and as we progress, we are required to evaluate each site every five years, starting from the time the cleanup starts. These evaluations are called, not surprisingly, Five-Year Review Reports, and have been done on various waterways and sections of the site since 1998, with the last one completed in late 2004, early 2005. The point of Five-Year Reviews is to determine whether the remedy, and all of its parts, is protective of human health and the environment. If problems are identified or if additional work is needed, then we are required to follow up and report out in the next Five-Year Review. Once an NPL site has gone through this cycle a few times and been consistently found to be protective, it's time to consider de-listing the site—that is, taking it off of the NPL as a Superfund site.

There are a couple of important points to understand about de-listing. One is that de-listing does not mean the parties that did cleanup may cease the operation/maintenance/monitoring program they've put in place. Secondly, future listing or re-listing might occur. So, if EPA discovers a problem, a site could be put back on NPL without going back through the whole public process for NPL listing, which we did for Commencement Bay back in the early 1980s. Also, de-listing from the NPL doesn't affect any decision the state may make or action they may need to take in the future. Your ultimate question is probably, "But *when* will it be de-listed?" I do not know what the current target date is for de-listing the waterways. We have already de-listed part of the original site. In 1996, sediments in the Blair and St. Paul waterways, upland properties draining to them, and four properties that'd been transferred to the Puyallup Tribe in 1989 were de-listed from the larger site. This was called a "partial de-listing." With respect to the rest of the waterways, I honestly do not know what the agency's target date is for de-listing, since we are only now just getting the cleanups finished on Middle, Thea Foss/Wheeler-Osgood and Hylebos Waterways. What I do know is that, we've come a long way to better understanding the need for source control and the tremendous amount of dedication and commitment it takes to do source control and keep doing it in order to protect the investments we're making in cleaning up

urban/industrial sediments. I've learned to value individuals for their strengths and knowledge and to seek team members who are capable and willing to work through differences that might exist between their institutions, all for the sake of doing source control and doing it well. Folks at Ecology's Southwest Regional office and headquarters made the last 10 years of source control history at Commencement Bay the huge success it is. I'm looking forward to applying those lessons learned along the Tacoma waterways to similar sediment sites.

Chapter Three - Washington Considers Its Litter

Since the formation of the Department of Ecology's Litter Program in 1972, the agency has enacted anti-litter campaigns, educational programs, and litter abatement efforts. Each summer since 1976, Ecology's Youth Corps (EYC) has taken to Washington state's roadsides to pick up litter. Now employing some 400 teens statewide, crew members collect approximately 600 tons of litter and 93,000 pounds of recycled material a year. In this chapter, interviewees describe the impetus for the Litter Program, including the formation of the EYC, litter education programs, and public relations campaigns—from mountain man "Cascade Jack's" famous slogan, "Litter just ain't natural," of the early '70s to the, "Litter and it will hurt" campaign of 2005, interviewees address public behaviors and attitudes in relationship to littering and how, as an agency, Ecology's efforts to create a cleaner Washington have been at work for more than 30 years to educate the public and foster a statewide environmental ethic.

Chapter Advisor: Gary Lambacher, Ecology Youth Corps and Litter Programs Coordinator for the Eastern Regional Office, Washington state Department of Ecology

Interviewer: Joy St. Germain

From a Notion to a Tradition: Ecology's Litter Program

An interview with Earl Tower
January 10, 2005

Tower

Position held at time of interview:

Principal of Tower Limited, a private lobbying firm, since 1992

(Employed by Washington State Department of Ecology from 1971 to 1992)

Education:

- Bachelor of Science in Behavioral Psychology from Eastern Washington State College, 1968

Joy St. Germain: Could you start by telling me a little bit about yourself, such as when you started working for the Department of Ecology, and why you chose Ecology?

Earl Tower: I started with Ecology in 1971 when the agency was being created from bits and pieces of a half a dozen or more existing state agencies at that time. That was when the Litter Program was really merely on paper; it hadn't even been created yet. It was just a notion in a piece of legislation that was passed. I worked for Ecology for about 21 years, and the Litter Program for the first seven years of that time, the last five of which, I was actually the Program Director—from 1974 to 1979. Then I took over as the Division Supervisor of the Waste Management Division, which included Litter Control and Recycling, the creation

of the Superfund Program, the Solid Waste Program, and the Hazardous Waste Program. This was at a time when the Resource Conservation and Recovery Act (RCRA) was first passed by the federal government, and then those programs were created by the state.

JS: Do you remember why you started working at Ecology? What attracted you to this agency?

ET: Oh, yes. I needed a job. I had just gotten out of the Army after two years on active duty, stationed at Fort Knox, Kentucky, and Fort Lewis, and my family and I had returned to Spokane, which is where we had lived before I went into the service. I was essentially looking for employment, and there was a federal CETA program—the name of which escapes me right now—but a federal program that made funding available to hire employees into the state program. You only had a guarantee of a year and a half or two years, but I took it and started with Ecology essentially because of my background—my major and emphasis in college was behavioral psychology, which was a good fit in the early days of the Litter Program. Most of the programs in the agency were fairly precise and scientific by nature, but the Litter Program was the only one that had more of a behavioral, public relations type of focus. So I started that job in Spokane, as I said, in the late part of 1971.

JS: Can you talk about the creation of the Litter Program, and the legislation that brought it into being?

ET: At the time the litter law was created, it was as an initiative to the Legislature, and in response, the Legislature created an alternative to it. When an alternative is proposed in this state, both of the measures go to the public for a vote, and in this case, they were Initiatives 40, 40A and 40B. Now the agency at that time clearly supported the alternative, which was 40B. Those of us who were working in the Litter Program, I recall, leading up to the vote in 1972, spent 90 percent of our time campaigning for the initiative. Times have changed considerably. You'd never get away with that today, but at that time we were actually supplied with slide shows, and our work was to go out and explain to people what the initiative 40B meant, and to urge them to vote for the alternative. Imagine trying to do that today. Then the alternative, Initiative 40B, did pass, and the program took a more permanent kind of look at itself. Conceivably, it could have been voted down and there wouldn't have been a Litter Program after that time.

It was a fairly large industry group, and they had, at the time self-inflicted this litter tax, which was an extraordinary thing for an industry group to do. As a matter of fact, I believe that they caught considerable amount of flack from their brethren throughout the country for being so foolish as to invite a litter tax.

JS: What other groups, besides Ecology, were advocating for a Litter Program?

ET: Actually, the Litter Program was created as a result of an industry group called Industry for Quality Environment—IQE is what they called themselves—and this was a group consisting of the bottling industry, the soft drink industry, the beer industry, and the distilled spirits industry. The groceries, the retail folks, were also involved because they carried many items that were considered to be litter at that time. It was a fairly large industry group, and

they had, at the time self-inflicted this litter tax, which was an extraordinary thing for an industry group to do. As a matter of fact, I believe that they caught considerable amount of flack from their brethren throughout the country for being so foolish as to invite a litter tax, but they were very much involved in the litter program. After the law passed, they were still very involved, and it became very political because the only reason the program had been created, quite frankly, was as an alternative to a bottle bill. It was all created because of the fear of, and the opposition to, deposit legislation, which at the time had passed in Oregon. So, this industry group stayed very active in the program, as you can imagine.

John Biggs, who was the Director of Ecology at the time, interacted very closely with Ron Murphy, who was the Chairman of the IQE group. Ron was a pretty wealthy attorney in Seattle, and also the president of the national organization that dealt with bottlers, and probably distilled spirits. That detail is important because, when you think about how the program was created, it had to be run and managed so that this industry group felt as if their money was being well spent. The fact was, they created this group, they taxed themselves, and, as a result, had proprietary and territorial feelings about the whole thing. So they were very involved in how it was implemented, and John Biggs, as I say, was clearly interactive with Ron Murphy. So whoever was running this program not only had to do a good job, but had to do it in such a way that it was perceived to be a good job by this industry group, IQE.

The real focus at the time was litter control and litter pickup, but it was also a program that was based on the belief that people's behavior could be changed, and they would stop littering as a result of that change. It was like a statewide public relations campaign run by a state agency with the resources to actually put massive cleanup into implementation.

JS: Would you characterize their role as advisory?

ET: They had no official role, to be honest with you. Their role was clearly political, but they were very influential as to what happened, and also very critical of what happened, and I don't mean that necessarily in the negative sense. It was more along the lines of scrutiny, we want to see exactly how things are going. When I was running the program in the early years, we would go up to Seattle to the Washington Athletic Club on at least a quarterly basis, and give presentations on the budget, how we were spending the money, and how many schools were involved. We'd show them the new posters and the ads. We had a lot of ads on TV at the time—public service ads—so we were constantly informing them so they were comfortable about how the program was being run.

JS: Could you go back for a moment to your earliest memories and impressions as to why the law was created, and then to some of the things you were proud of, and some of the challenges you faced in administering such a program?

ET: Well, as I said, the reason the law was created was very political, and it was clearly the alternative to deposit legislation. The bottle bill was the big issue, and stayed that way all the way through the '70s and through the '80s, for the most part. There was no notion of waste reduction and recycling at that time. Those were not in the original language, nor

were they in the original part of the program. Those were all things that evolved over a period of time and came about years later. The real focus at the time was litter control and litter pickup, but it was also a program that was based on the belief that people's behavior could be changed, and they would stop littering as a result of that change. It was like a statewide public relations campaign run by a state agency with the resources to actually put massive cleanup into implementation.

We did some crazy things back then. We had a statewide bicycle run, which literally closed I-90 down. We had, as I recall, several hundred bikers who were allowed to use one lane of I-90 from Lake Sammamish to Spokane—all in the name of litter control. They'd go along, the state troopers accompanying them, and they'd camp out at certain places. The following year, the Department of Transportation changed the law, making it illegal to do things like that, and I'm sure it was because of our bicycle run. Anyhow, we got some great pictures, and even produced a video—or actually back then it was a movie—showing the perspective from an overpass, where you all you could see on I-90 from the overpass to the horizon was a column of bikes. It was all done by the state, through the Litter Program, to bring about awareness, and to keep us thinking about the issue and therefore not littering.

JS: Was part of the law's purpose to create jobs employing the youth? Was that part of the program in the early days?

ET: It was not a part of the law in the early years. The first year or two there was a youth program, but it was run through the Department of Parks, because they had the only state exemption allowing them to hire young people into their youth program without making them state employees. They had all these FTEs (full-time employee positions) that could be divided up into bits and pieces, which gave them the ability to hire young people there. We provided the money and we hired the people, and while it wasn't nearly so big as it is today, we hired kids in the summertime through the Department of Parks youth program. I'm going to guess it was 1974, or thereabout. John Biggs, the Director of the Department of Ecology at the time, came to me and explained how tired he was that the Department of Parks got all the credit for our youth program. He instructed me, expletive words deleted, to go down to the Legislature and get the necessary law and FTEs changed so we could run the program directly out of Ecology. Now, you have to put this in context, and realize that the early '70s was when the economy was in the tank. Remember the gas shortage in 1974? The agencies weren't asking for new FTEs. As a matter of fact, they were fighting merely to keep what they had, and here Biggs was sending me down there to get new FTEs. The long and the short of it was this: We went down and got the law changed, which created the Youth Program, and we got 74 FTEs in the same session when other agencies were getting cuts.

Then we had to sit down and think, aw now, what are we going to do with this thing? Because 74 FTEs translated, depending on how you divided it up, into a ton of kids able to be hired in the summertime. I don't remember how many we actually hired, but it seems to me, the first summer we had it, that there were probably a couple of hundred kids. There was a fellow named Mike Arhaus, who was unofficially my deputy, and who became a very important part of our ability to hire these kids. Mike and I sat down with a blank piece of paper and created this whole notion, and the whole structure of the Department of Ecology Youth Corps. Of the things I'm proud of that came out of the Litter Program, that's one of them. In order for this to happen that first summer, we had to get hold of General

Administration and find out what kind of vehicles we could get. For people who have been around long enough, they'll remember that the typical state cars back then were old Nash Ambassadors, and we got, for that first summer Youth Program, probably 40 or 50 Nash Ambassadors that had over 100,000 miles on them, and were about to be surplused by the state.

Ecology Youth Corps, distributing car litterbags at a public event, 1981.

So, and I'll never forget this, we had to go down to Olympia and individually drive these vehicles back up to the office. We ferried each other back and forth. I remember now that Ecology headquarters was over in Abbott Raphael Hall, on what had been St. Martin's campus in Lacey. Where Ecology headquarters is now, across from where we once were at Abbott Raphael Hall, there used to be a big, empty field. We parked all the cars in the field right there, pulled them up and parked them, and we looked at it. Here were these 40-some vehicles parked side by each, a pretty impressive sight. Now, the reason this becomes important is because that's how we structured the crews of the Youth Program—one supervisor and five kids, six people—which was the most you could jam into one of those Nash Ambassadors, along with all the bags and all that kind of stuff. There were no vans back then, and I'm sure they didn't have nearly as much safety equipment as they do now, but that was how the crews were created. We calculated it out, x number of crews in each region, and that the regional supervisors of the other programs had to manage them. The regional supervisors could hire their Youth Corps guy or gal to serve as coordinator, and they'd decide where they were going to go, and all those issues. That was when we developed the logistics of how to distribute the bags and the vests and the cones. Those poor kids. They'd come out of this place, and they looked as if they were heading off on some kind of safari. As the cars were being loaded down, Mike and I would bite our lower lips every once in a while, saying, oh my God, I hope they don't have any mishaps.

So, that was the creation of the Ecology Youth Corps, and yes, I'm very proud of that. It still makes me feel good. I drive along and see the yellow lights flashing, and the cones, and the kids out there working, and I think of how many kids have been affected by that. Of course, we created the program to be twofold. The kids themselves were part of the behavioral change, and I had a lot of kids and parents who remarked after the summer, man, you've created a non-litterer out of this person, and they will go forth and carry the message—so that part was effective. Plus the public, just seeing these programs, was impacted. We did weird little things like, in the instruction booklets, telling the kids to always leave the bags—which, at the time were white bags that had big litter symbols on them, with Youth Corps on it—and to make sure they stacked all the bags so that the symbols faced oncoming traffic. We also cut a deal, in a lot of cases with either the local county or state, whoever had

the responsibility to come and pick those bags up, not to pick them up for a few days. The goal was to leave the bags on the roadside long enough that people driving by would see all the little signs on the bags, you know, to let them know about the Youth Corps and their efforts.

JS: In the law, I know there's a priority order defined for the collection, handling, and management of solid waste that should be followed in descending order, waste reduction, recycling, and then energy recovery incineration, landfill. How does litter fit into this whole hierarchy of waste management, and how is this problem viewed in the big picture with all these other priorities?

ET: Well, I'm going to go off on a little bit of a tangent here, and then I'll come back to your question as you actually asked it. First of all, when Ecology was created, it brought together the Water Pollution Control Commission, the Air Program, the Solid Waste Program, and the Water Resources Program. For the most part, the agency, which by that time had about 230 people in it, consisted of engineers. They were scientists. The Litter Program was a weird program in the middle of all that, and there was an awful lot of jealously, I'll call it, and it manifested itself in a lot of interesting ways. We had really a lot of resources, you see, in the relative order of things, and that showed in the design of the program. This whole descending order of waste reduction and all of that was not a part of the program then. It was absolutely and clearly a Litter Program designed to show that this kind of program could be more effective in controlling and reducing litter than a bottle bill. So there was none of this descending order priority, it was its own priority, and quite frankly, it enjoyed enormous resources because the law was dedicated to it. As you remind yourself of the politics that I was talking about earlier, there were clearly a number of those folks who were watching to make sure that money didn't get used for anything else. It was somewhat later that the waste management priorities were put in.

Ecology Youth Corps crew at work, 1982

JS: I think it came in with the Waste Not Washington Act.

ET: Yes, which was in the late '80s, and by that time I was doing the legislative work, so I don't have an awful lot of recollection of that in the context of the Litter Program. The whole time I was running it in the early years, it was simply a litter program, not even a recycling program. As a matter of fact, they never used the word, "recycling," because it really was, as I said, for litter.

JS: What about the covered load issue, where the law requires that loads transported from vehicles have to be covered or secured to prevent spillage, and which included ordinances that counties and cities had to put into place to address the issue of reducing litter from

vehicles. It also included language about a fee that could be put in place, say, by the local government to really address this concern. What can you tell me about this?

ET: There was always a component of litter that seemed logical to us, which was that some of the litter happened, not because is was being thrown out the window or dumped, but because it was blowing out of or falling off of vehicles that carried it. It was falling from the back of a pickup, for instance, that wasn't secured and wasn't managed. We were always asking ourselves, how do we get that piece? Then the germ of the idea came up: we should require people to cover those loads. There was not, at that time, a requirement that a load be covered, but if a State Trooper was following you, and a piece blew off your truck, he could stop you. There was some provision in the law where he could cite you for not having secured or covered the load. He had to see it happen; if he went by when there was stuff in there, but nothing was falling out, he didn't have any basis to cite you.

When I was doing the legislative work, I took this issue on personally, and I managed to get it maneuvered into an agency request piece of legislation. As I recall, for four years at least, maybe longer than that, I could never get the damn thing passed. It was always for different reasons. One year the loggers reacted to it because they said, the way it was written, it would have required that they cover their logging trucks so stuff couldn't blow off. And no matter how much I protested and said that wasn't it, it was enough to kill the bill. One year the waste haulers responded to it because they said it suggested that they were the problem, and their feelings were hurt over that, so they worked against it, and they killed the darn thing. Then it was the gravel guys. On and on.

Finally, I had it in such a way that I believe it was a House Bill. I got it passed out of the House. It went to the Senate, got out of committee in the Senate, and it went to the floor of the Senate. For those familiar with the legislative process, it was in the form of a Consent Bill, which means it had absolutely no opposition, and it was one of those that was almost passed. I was in the gallery watching, and the bill came up. At the time the Republicans were the majority, and the Democrats were in the minority. Senator Ken Madsen was sitting in the back row, reading the bill. The bill came up, and he raised his hand, Mr. President, I have a question. This was during the Consent calendar, so the majority floor leader, Irv Newhouse, immediately stood up and said, Mr. President, we move to defer action on this bill until further notice. They didn't want to spend any time messing with it. I was up there in the gallery, saying, "no, no." I went down and asked Madsen what he was doing, and he kind of laughed. He said, oh, I don't know, I just had a question about the bill. I asked, "Do you have a problem with it?" He said, No. I went back to Irv Newhouse and said, "Senator, can't you please bring the bill back up on the calendar?" Well, to make a long story short, my bill died off the Consent calendar in the Senate. It's one of those lessons you learn when you're in politics. It wasn't until after I left that the bill passed. I'll have to give Bill Alkire, the agency's legislative liaison, credit. He asked for the Covered Load bill, which must have been after '92, I guess.

JS: Some of the issues around litter include items that some people may not think about when they think of litter, such as abandoned cars, or tires that are left on the side of the road or in the woods in rural areas. That is considered litter, is it not? And, if so, how is this kind of litter problem addressed?

ET: We struggled with that in the '70s. Are those items really litter or not, and, if so, how do we pick them up? We certainly didn't, in the Litter Program at least, want to get into the business of cleaning up old dumps and that kind of thing. But cars, at the time, seemed to afford us an opportunity to really get a splash as far as PR goes, and we were always looking for those opportunities. So we began a number of massive cleanup programs throughout the state, back in the early '70s, to rid counties and the countryside of abandoned vehicles. It was always a logistical hassle. It was really a hard one to put together, because, as you can imagine, it was expensive, and it wasn't like sending kids out to pick up litter in the field or even having community projects to clean up the Yakima River. It was much more logistically demanding than that, and it usually involved working through whatever local government had jurisdiction, and they would hire local contractors to physically remove and haul the vehicles from the countryside to their final destination. We would coordinate the event, but that work was an important part of the program, especially because of the PR component.

The charge of this agency is to deal with exactly that question you just asked. That is, how do we manage all of this and still come away with an overall clean environment in the state of Washington? And you have to be careful, of course, that you don't create one problem when you're solving another.

JS: Do you think Litter Control is still important, and, if so, why do you think that? I ask this question in regard to the limited resources provided by the Legislature to protect both the state's environmental resources, as well as all the critical problems we face in public health—the whole area of natural resources or water issues, cleanup of waters quality issues, the protection of our wetlands, even the cleanup of toxics sites still around the state. What is your perspective?

ET: This may sound more negative than I mean it, but with all the challenges in coming to grips with the priorities of environmental management, everybody has his/her own area, and has his/her own set of priorities—a territorial kind of protection. For example, water quality is more important; no, water resources is more important; no, air is more important. Well, they're all connected, obviously—which is why this agency exists. The charge of this agency is to deal with exactly that question you just asked. That is, how do we manage all of this and still come away with an overall clean environment in the state of Washington? And you have to be careful, of course, that you don't create one problem when you're solving another. That's where we get into the more scientific programs, and it's a lot harder to deal with those. The Litter Program, back when it was created, and still to this day, provides an opportunity to try to rise above all that because it really deals with changes in attitudes. It's not a Superfund cleanup program. It's not a regulatory program. It's not a toxics management program. It's not a hazardous management program. The main emphasis of the Litter Program, going back to its genesis, is that it is not a regulatory program. It's a program designed to reach out to the public and make them environmentally sensible. We used to refer to it as the "miner's canary" in its early origin, because it was a program that essentially indicated people's attitudes and behaviors. So in that regard, it was all about state of mind. I'm sure I had my own biases because of the fondness I have for the program and the struggles I know we went through in its creation. I

was always worried, quite frankly, when I saw the whole recycling and waste reduction piece come into it, because I knew that would begin to distract from and draw resources away from this piece, the attitudinal aspect of the Litter Program, which I believe it has, obviously. And I still think litter control is a very important piece of this entire environmental management scheme you have here.

JS: I believe there was a strong public education element to the Litter Program at one time. I think it included working with the school system as well. Could you talk about program ethics as related to education?

ET: All these things we did in the early days of the program—the covered loads issue, the abandoned cars, the community projects, the Youth Corps—were directed to try to appeal to a certain segment of the public. We also considered the young people clearly the answer to the solution. While we were going through all these motions, creating a litter-free environment in the state of Washington, the true behavioral aspect was aimed at getting the young people involved and educated and indoctrinated to be non-litterers. We went into the schools. We created one program that was called Professor Rettil. Rettil is litter spelled backward, and the character and the voice of Professor Rettil was Larry Nelson, a radio personality on KIRO. He's still around. But Professor Rettil would talk about litter in this funny clown way. He, as a live character, did not go out and go to schools, but the program was designed for schools. We didn't have nearly the technology back then that we have today. So, we created displays we put in lobbies, in stores, and such. You'd push a button, and it actually brought Professor Rettil up, and he would talk about different litter issues in a really fun sort of way. We'd send Professor Rettil programs for schools to run themselves. We did have a school program that involved a live character, a mountain man named Cascade Jack who went to the schools and talked to kids about litter.

JS: Where did you find him?

ET: Mike Arhaus found him someplace, I don't recall where. When we put the deal together, we had to have Cascade Jack come in to meet with Ecology's Executive Committee—the director, assistant directors, and the deputy director. They wanted to see his presentation to see who the character was. Arhaus and I had to go up somewhere and drag this guy out of the little trailer house that he lived in—he'd had a little too much medicine the night before, too—get him dressed in his leathers, so that he looked like a real mountain man, and bring him down. He had a routine he would go through, and the whole idea, of course, was that he would talk about the way it used to be. His phrase was, litter just ain't natural. That's what he built his whole program around to get kids to think about the fact that bears don't litter, deer don't litter, birds don't litter, and it ain't natural for kids to litter. He'd do it in the context of being a mountain man. Anyway, we brought him in to the old conference room, and here was the Executive Committee, all in suits and ties, and here was our mountain man, Cascade Jack, giving his pitch, which ended with his shooting off his old black powder gun.

JS: Inside?

ET: Oh, yeah. He did it in the classroom, too. I mean, he had a routine that culminated in his shooting his black powder rifle inside. Anyway, they bought it somehow. I'm not sure how he did that. I'm not sure how Cascade Jack pulled that off, but it was really a fun part

of the program. Then the litter crews, which would be managed in different regional offices by the regional guys, would schedule him in schools to do school presentations.

Dixie Lee Ray was the governor at the time. There was a move to cut, if not eliminate, the Litter Program, and therefore a meeting was called. I had to go with Web Hallauer, director of the agency at the time, to the Governor's Office. It was still up in the air whether or not they were going to slash this program, but I brought up Cascade Jack in the context that we used to get stacks of letters addressed to him, because the school teachers would often, after Cascade Jack had been there, ask the kids if they wanted to write him a letter. So, they'd write letters to Cascade Jack. I had a bunch of these letters with me, and I read several of them to the governor. What I said was, "I don't know if all this is working. I don't know if we're having an effect; it's hard to tell if we're really getting into people's minds and shaping their behavior. What I can tell you is that I get these letters back from kids who have been exposed to Cascade Jack. Most of them said something to the effect of, 'Thank you very much for coming to our classroom. I really enjoyed it when you shot off your gun,' signed Sally or Joe or Jim, 'your friends who will never litter again.'" That's essentially what I said to the governor. She looked at me, and she looked at Hallauer, and said, OK, leave it alone. So, anyway, it was always hard to tell when we were really having an effect, but those letters were tangible. Those letters to Cascade Jack poured into our office.

So, anyway, it was always hard to tell when we were really having an effect, but those letters were tangible. Those letters to Cascade Jack poured into our office.

JS: What are some of the other highlights of the Litter Program that you will always remember?

ET: Well, we've covered most everything. It was fun having all that freedom and ability to do crazy things that we hoped would have an impact—I mean, some of the outlandish posters that we produced, and some of the almost bizarre public service ads that we paid for and produced, many of which, by the way, won awards all over the place. There was this guy, one of the producers we used early on, who was really good. I can especially remember two television ads he created: One was a visual of a boat. Everything was clean and yellow, and this guy and this young maiden are in the boat. The guy is talking about what he can do to make her happy, and she keeps responding, no. And then he finally promises her that he would never litter. So she tells him she loves him. It won all kinds of national awards. Then there was this stupid rock band called The Litter Control, or something. They were so terrible. They were just awful. You couldn't stand to listen to them. The whole idea was that litter is ugly and awful. That one played at halftime at a Super Bowl back in '75-'76, or around that time, and it also won some awards. There was some outlandish PR that was created, and you either liked it or you hated it, but a lot of it won awards.

JS: Even though you're not intimately involved in the Litter Program today, do you have any thoughts as to how the program that began in '72 could continue or be enhanced?

ET: Well, I don't know if this is a rational, real thing so much as it's just a reflection, or my own fondness for its history, but I think I'd like to see the program refocus on the behavioral aspects of littering, especially in regard to children's behavior. I'd like to remove at least

some of the focus on some of the things that I was talking about earlier, waste management, etc. I do think—going back to the idea of the miner's canary—the true work of the program, the basic philosophy that was embraced when it was created, is to remind people how beautiful this state is, and how littering is an early manifestation of not caring about the environment. I'd like to see people reminded of that.

'Litter Gitters,' Working Washington's Roadsides

An interview with Gary Lambacher
October 21, 2004


Lambacher

Position held at time of interview:

Ecology Youth Corps and Litter Programs Coordinator for the Eastern Regional Office, Washington state Department of Ecology, since 1989

Education:

- Bachelor of Science in Wildlife Biology, University of Michigan, 1974
- Secondary Education Science Certification, Cleveland State University, 1977

Joy St. Germain: We're here to talk about the Waste Reduction Recycling and Model Litter Control Act, specifically about the Litter Program. Could you tell me about how the program works, how old the kids are, and how you actually do the recruitment and selection process?

Gary Lambacher: Basically our program, the Ecology Youth Corps, or EYC, runs two different kinds of crews. The majority of our work is with youth, 14- to 17-year-olds. They're what we call our youth crews. Then we have some adult crews, which we also call "median" crews. We don't have as many of those, but they clean the more difficult areas of freeways. The youth we hire are usually recruited through the schools, through the Work Source Office, and through other community agencies. We recruit beginning in late January to early February, although we all do things slightly differently in the four regions. Several of our regions have a recruitment period that runs up to April 1st. The kids are also required to submit two teacher references and from there, we then line up our interviews. Typically, we will interview two to three kids per position, and after the interviews, we select the top kids for the positions.

JS: How many people are on a crew?

GL: Most crews run anywhere from five to seven teens, typically six. One of my crew vehicles is a four-wheel drive pickup with a large back seat, and that one can only fit five. Occasionally, we can't make a decision between the final two kids on a crew; they're both equally qualified and we hate to say no to one of them when we've got room for a seventh kid. So on occasion, we'll have a seventh kid in the vehicle. Of course, the supervisors are

Department of Ecology Central Regional Office Ecology Youth Corps Crew, Vicki Colgan Supervisor, 1991.

adults. In the Eastern region, most of them are teachers. I believe that's also true for the Central region. They have their summers off, and they're used to working with kids. I've had good success hiring teachers. The crew members typically work one month in the summer. We have two sessions. Our first session begins anywhere from the third week of June until the first week of July, depending on the region, and we go anywhere from 17 to 21 days; then we have a turnover. Those kids are finished for the year, and new sets of kids take over. We work anywhere from a seven-hour day in the Central region, to an eight-hour day in the Northwest and Southwest regions. The kids get paid a little bit above minimum wage, presently at $7.35 an hour.

JS: So the main work is done in the summertime?

GL: The main work is done in the summertime. We do have adult median crews who often work in the spring and the fall in most of the regions, but typically the main work is done in the summertime. I have had youth crews in the spring or fall, working on Saturdays, but I haven't had a crew doing that for probably four or five years now. It happened when we have extra money in the budget, and there's still work to do. We identify where we didn't get certain areas done in the summer and then we might run a crew in the fall on Saturdays, for instance. It's a highly competitive process for the kids. I may get anywhere from 700 to 1,000 applications in the Eastern region, but I'm only going to hire about 100 kids every year. I may get up to seven to 10 applications per position. It's a fairly popular program in that regard.

JS: So Gary, what kind of skills are you seeking when you're screening 700 to 1,000 applicants?

GL: Well, we certainly want an application that has been thoroughly completed, and the vast majority are, but it's their teacher evaluations that I look at pretty closely. The teachers

check off four or five different items: attendance, getting their work done, things like that, but I'm really particular about two points. One is that they're willing to follow the rules, because the kids are going to be working in areas that are relatively dangerous, such as along the highways, so they have to be people who will follow what their supervisors tell them. The supervisors are highly trained, and when they tell them they need to do this or that, the kids need to follow their directions to the letter. Another category I observe closely is their ability to get along with their fellow students. We have to work as a team out there, and we need kids who are willing to work and look out for one another. Those are the two key issues: the ability to work with a team and to follow their supervisor.

JS: Gary, what kind of thing do the kids find on the roads? I imagine it's like an archeological dig, where you find artifacts that tell you about the culture, the civilization, the people who live there. For example, what are some of the most common litter items people throw out, and what are some of the unusual things that have been discovered by crews?

GL: One of the most common items isn't something that's thrown out. It's tire tread from tires that have exploded, particularly truck tires. The other most common items are bottles and cans. Fast food material is big. Paper is big. I would say that the drink containers are the most common, particularly in Eastern Washington. Some of our crews will actually pick up more bags of recyclables than litter. We try to teach a recycling ethic to all our crews, explaining that they may get more bags of recyclable materials than non-recyclable litter. They may go along and pick up ten bags of bottles and cans, only to collect two bags of litter to go to the landfill.

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Let's see, some of the unusual things they've found—there was a crew, I think it was in the Northwest region, where a girl actually found her own mother's missing wallet. Another crew found a birthday card from a supervisor's girlfriend. They found it in one part of a region but the supervisor actually lived in another part of a region. In our region, one of our crews came upon an illegal dump in one of our counties down South. The supervisor called me with the address and name that he found, as this was household garbage that had been dumped. So I called the health director of that county, and I ended up leaving a message with the secretary, who took down all the information. It was at least a month before the director called me back. When he did, he said, you know, I've had a hard time with this, and that's the reason I haven't called you. The illegal dump that you found was from the woman that you talked to on the phone, my secretary. That was something.

There was another time when a Northwest crew actually came upon a locked car with a baby inside, in the woods along the highway. The mother was drunk, but they were able to call the police and get that settled. Then a businessman lost a ledger. It had really important papers in it, and it had been gone about five months. A spring crew found it just in time for tax season. We found a body one time in our region, a murder victim, along a remote

highway. It was really by chance that we found it. This was back in 1998. The dead woman was a 31-year-old mother of five, and she had been killed by her husband. Anyway, the girl working the area came back to us and said, there's a dead body over there. The supervisor and I looked at each other, and then looked at her and said, well, it must be a deer or something. She said, no. So, we hurried over there, and sure enough, that's what we found. The fortunate thing was that the supervisor himself was a retired school counselor, and he was able to counsel the teenage girl who found the body. We talked to the parents and offered to pay for private counseling, but I guess they didn't need it because they never took us up on that. That was a harrowing experience.

There are other nasty things that we find out there. There have been weapons. There was a robbery that occurred in Montana involving two sawed off shotguns. They ended up in the median in our region. Our crew found them, and the authorities were able to trace them back to the crime. Also, one of the crews on the west side came upon a marijuana plot, 28 marijuana plants growing. They turned that in.

One of the things that has worsened over the last few years is the amount of urine bottles that are found along the roadside. People are more reluctant these days to stop and utilize the restroom facilities, so they'll use a plastic pop container, cap it up, and throw it out the window. We find lots and lots of those. They're increasing every year.

One time I happened to be doing crew checks, driving along a two-lane state highway, and I saw all this stuff across the road. So, I pulled off the road to investigate what it was. It turned out a Hostess truck had just dumped a whole carton of Ho-Hos. It was a big container with maybe 15 or 16 boxes, and there were about a dozen to a box. So, I picked all the good ones that hadn't been run over—they were all sealed, as it must have happened just 10 or 15 minutes before I got there. I gave them out to all the crew staff. So, the kids enjoyed them.

JS: With kids cleaning up litter on the highways and roadways of the state, safety concerns definitely come to mind. How do you prevent accidents from occurring on the job, and what do the litter crews do to keep safe? How do you manage the safety concerns?

GL: First of all, we always state that safety is our No. 1 priority, and we've been running crews now in the program for over 30 years. We're always revamping our safety regulations to improve the system. You can be very, very safe, but then totally unproductive. There is a balance needed, but safety comes before productivity. So, we've honed this balance over the years. We send our supervisors through a week of intense training, just before they go out with their crews. They're trained in all the safety setups and safety procedures, and they go through intensive first aid training and recognition of hazards. Our setups are based on road safety procedures that are incorporated by the Department of Transportation, and we monitor our crews very closely. We're out there visiting our seasoned crews once a week, and, with our newer supervisors, more often than that. The supervisors are required to conduct safety meetings with the kids. They go through all the safety stuff with the kids before they actually hit the road, and then we've required them to conduct safety meetings weekly. In my region, those meetings are required first thing every Monday morning. If an incident does happen, and it's something about which they could call a safety meeting, they will. For example, let's say, Billy steps in a gopher hole and falls down. Maybe Billy didn't get hurt, but that would be a reason to hold another safety meeting to talk about watching

where you're putting your feet. So, the kids really do become much more safety conscious than they had been before.

JS: What have you learned about people's behavior and their attitudes toward litter control, and their responsibilities toward being good stewards of the environment? For example, why would someone throw a bag of garbage from his or her car window when they could use a litter bag in their car or recycle?

GL: There are probably a number of different reasons for that. A lot of people don't have litter bags in their car, even though they're supposed to. Throwing out a bag of garbage sometimes means taking it to the dump, where they don't want to pay the tipping fees. Other people are just lazy, or ignorant, or apathetic. In some lifestyles, they don't see garbage as clutter, they don't see it as being messy because they live in mess. If you were to visit their house, you'd see a very messy property, a very messy house inside, but they're just used to that. So, even though it's something that is upsetting to us when we see it, it's simply not upsetting to some people. They grow up with it all around them, and they just don't see it. Or perhaps it gives them a sense of independence to throw something out the window and think nothing's going to happen to them. Well, hopefully somebody will catch them, but that doesn't happen very often. I do know that a lot of people don't carry litter bags. I also know that a lot of the beer bottles are going to be thrown out because they don't want to be caught with an open container. If they were speeding, and there's a bunch of beer bottles in the back of the car, then they're more likely to be cited further. So, if they pitch them out, they think that they're getting away with something. It's upsetting for me to see how many people are drinking while driving.

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JS: Is it that people don't report others, or is it that they just don't see people throwing out their litter, so they're not caught in the act?

GL: Yeah. I think a lot of people throw litter out when other people aren't looking. For some people, that's not a problem. I've seen plenty of them throw stuff out the window. Some people use the back of their pickup truck as kind of an intermediate host, whereby they know if they drive fast on the highway it'll blow out, but yet they're not actually throwing it out so they feel they can't be blamed for it.

JS: Gary, I know there was a strong program that focused on school waste reduction, recycling, and litter control. Could you tell me a little bit about these school programs and how they work, and also if they still exist today?

GL: The school programs don't exist today. When the Legislature changed the act, the management team decided we needed to focus 100 percent on litter pickup, and so the school programs came to an end around '97-'98. I remember sitting with Christine Gregoire when she was the director in '89, and we were talking about the Youth Corps

Program. Basically, she leaned forward and told me, let's get the kids off the roads. She felt it was just too dangerous for them, and she wanted to do other things with them, which was the stimulus to go to the schools. The central region was probably the first to have a school program. Starting in the '80s, they had an assembly program that went around to schools. A group of EYC kids performed a rap-type program on recycling and waste reduction.

I started the school program in the Eastern region in the fall of 1989. I would hire someone in the school to be the supervisor, usually a teacher, and then I would hire anywhere from three to a dozen kids to put on a recycling program to teach waste reduction to the school. They would do a school waste audit several times a year to monitor progress in getting the school to reduce its waste. The crew members were also paid to go around and do environmental education programs in the elementary schools. As a matter of fact, we started to get too heavily into this. I had 10 school programs, and I had reduced my summer litter crews to five. At some point headquarters said, we can't do it like that, we've got to be picking up litter 51 percent of the time. So in 1992, I reduced the number of school crews and increased my summer crews. Shortly after reverting to an emphasis on litter pickup, I sought a better, more effective way of getting to more schools. We came up with the idea of having the "School Board Crew." I hired a half-time supervisor, Carol Bergin, and two kids from each of six different high schools in Spokane. Each high school also had a volunteer advisor. So, Carol would bring the kids to the Ecology building once a week, and they'd have a two- or three-hour meeting. The crew members would then go back and implement the program in their schools using their volunteer advisors for guidance. It was a great program, and that was the program that we had when we had to give it up in '97-'98. In the Northwest region, they ended up having crews they called "county crews" in a number of schools. For example, there was a rural school up there where the kids were taking the school paper and using it as animal bedding for animals associated in their school agricultural program. Then they were composting the animal bedding after it had been used, and turning that into garden mulch. So, they were utilizing it in several different steps along the way. During the 90s, the central region went through a number of different coordinators in a fairly short period of time, which made it difficult to get their school program up and running. So, I think some of the coordinators decided not to implement one. In the Southwest Regional Office, there were some problems with some of the school districts. I recall the coordinator having difficulty with the long-term viability of programs. Some schools dropped the ball after the EYC kids left.

JS: It sounds as if you were very successful in the Eastern region, what with the schools having so many demands on them, yet they seem very receptive to this. What do you attribute that to?

GL: The key was getting someone good like Carol Bergin in the position. After Carol left us to go back to college I had two other people who also did a fine job. But then, after they had moved on, Carol Bergin knocked on the door and stepped back into that old position. So, we ended up finishing with Carol, and the kids gained a valuable experience under her supervision. But all of those supervisors knew to look for crew members who were fairly influential, good students, and well respected by the faculty and staff at the school. Also, the volunteer advisor was a key person, somebody who had an interest in the kids and the environment, but didn't have to spend a lot of time with it because the kids were getting half their training hours with us.

JS: What can you tell me about the school waste audits?

GL: For those, we would get the school to save all their waste for a set period of time, usually a week. We didn't audit the lavatory wastebaskets, but we audited all the other wastebaskets and the recycling bins, including the cafeteria. Typically, the audit would be done in the kitchen because it usually had a hard floor, and the job was messy. We would put a big tarp down, or several tarps, and the kids would dump and separate, sorting items into the various categories. We would then weigh each group, and then the crew would be able to tell the school administration how much could be recycled or composted, or reused. The crew would audit the school usually around October, and again in the spring, usually in April, early May at the latest, to see if they were able to affect some change.

JS: Can you describe the A-way With Waste school curriculum program that Ecology once did?

GL: A-way With Waste program was basically a teacher training program. It had a wonderful curriculum guide with K-12 lessons in all the different subjects. It won some national awards, and it was a really well put-together package. We had a coordinator in each region, and training was given to the various school districts. Teachers were able to get college credit, I believe, for taking it. I was not the coordinator of that program, but I did participate with the coordinator several times, and I also did one on my own at Washington State University for the student teachers. The good thing about A-way With Waste is that it helped maintain attention to litter control, recycling, and waste reduction in the school district where it was used.

JS: Are schools still using the A-way With Waste curriculum today?

GL: We don't know. I suppose some of the older teachers who still have the manual have found some of the lessons valuable. They may be still tapping that, but there's probably a lot of teacher turnover since a lot of baby boomers are leaving to retire, and those were the people who probably got the most training. The younger teachers have not had that training and probably don't have the manual. I would like to see our department have more of a presence in the schools. We have very little now, and it needs to increase.

JS: What are the benefits of the Litter Program, and how do you think the program is received by all the different stakeholders: by businesses, the Legislature, by citizens, and by the employees at the Department of Ecology?

GL: The biggest benefits go to the kids who are part of the program, and I think we do create an environmental ethic in them, even if that environmental ethic is only that they'll never litter again, nor let their friends litter. We've had some of the kids go into environmental careers from this, including at Ecology, but also I think we give them good job skills in general. It's a positive, practical initial experience that they get. They learn how to work as part of a team. Most of them are going to be working with some diversity on their crews that they may not have

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experienced before. For most of them, it's their first real job. We do get more 14- and 15-year-olds, typically, than we do 16- and 17-year-olds. These kids don't have other options for jobs, and so we get plenty of applications in for the younger teens. Also, they're working with an adult who might have been their teacher during the school year, but now he or she is their supervisor. So we teach that there's a difference between this person being your teacher and this person being your supervisor. There are a lot of benefits to the kids besides the paycheck. Certainly their parents love us. We've generally had positive influence on the Legislature. They seem to always approve of what we do.

JS: What are the goals of the Litter Program today, and how does the program measure success? What do you consider to be success, and along those lines, what do you think are the priority areas of focus that will further the goals of the Litter Program?

GL: There are two schools of thought. For the old coordinators who have been around awhile, the program's No. 1 issue is that this is a program for youth. There's a difference between how the old Waste Reduction, Recycling, and Litter Program looked at EYC and how the Solid Waste Program now looks at it. Now it's more about bags and miles, as in, how much of the state got cleaned, how many bags did we pick up, how many miles were cleaned and how efficiently did we operate. Did we save any money in the process? In the past, the focus was more on the experience the kids received. Getting the miles and getting the bags were important, but we didn't want to sacrifice a program that was really rewarding to the kids. So, in most of the regions, we have an environmental education component to the program, and the kids get to learn about other aspects of the environment. In the Eastern region, they always tour the big incinerator in Spokane that burns all the garbage and converts it into electricity. Then there's a place in Spokane we called the Green Zone, run by Spokane County Solid Waste Program, which includes information and activities on waste reduction, recycling, composting, and utilizing native plants, and related issues. Kids may get a tour of the landfill or maybe a fish hatchery. So, there is a component of the program emphasizing many environmental issues.

One mile's worth of litter awaiting pickup along I-405 in Western Washington, 2004.

JS: What are the priority areas that you think we really need to continue to focus on that will further the goals of the program, both the program for youth, the experience that they get, as well as the actual litter pickup itself?

GL: Well, litter pickup is important, and we try to get our kids to recycle as much as we can. We usually have some really good numbers there. The priorities are the roads and public lands we're cleaning up for the people of Washington, and for the people who come to visit our state. Also, it's important to monitor and evaluate the program and to improve the tools for doing so. Some aspects are difficult to evaluate, but we try. In my region, we have the kids and their supervisors. I, in turn, evaluate the supervisors and the supervisors evaluate their

kids. Then the kids evaluate their supervisors and their supervisors evaluate me. So, everybody's evaluating all the time.

JS: What have you found to be the most fulfilling part of your job, and then, on the opposite side, what do you find to be the most frustrating or challenging part of your job?

GL: I think that the most valuable part of it for me is the creative interaction with the kids and with my supervisors, especially the ideas that they come up with, and the positive changes we can make. I suppose one of the most frustrating things is for some of my crews to experience a lack of respect from certain members of the public who think our kids are a bunch of juvenile delinquents, and believe they can drive by and shout obscenities. That happens, unfortunately.

The focus on more bags, more miles can get to be too much at times. I prefer a more balanced focus, I think. Also, there seems to be a lack of awareness by the general public in regard to who or what the Ecology Youth Corps is about. We need to get our message out.

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JS: You mentioned that sometimes people think that your crews are a bunch of juvenile delinquents. What are the other programs that exist who are also doing roadside cleanup—Corrections, and then Department of Transportation itself? Who else?

GL: There are other programs. You have Adopt-A-Highway, which comprises volunteer groups working for the Department of Transportation, and then you have Corrections crews, and then there's the Community Litter Cleanup Program. Some of these programs utilize jail inmates to pick up litter, or people who've been required to do community service.

JS: What changes have you seen over the years with the Litter Program, and what do you think still needs to be done today to continue or enhance the Litter Program that began in 1972?

GL: Certainly safety has increased. We'll always be looking for new innovative safety measures. My Ephrata crew supervisor who began back in the mid-'70s recently told me that the hiring process was really loose back then. Now we have everything really controlled and regimented. Back then he was hired over the phone. He never met the person who hired him, his supervisor, until well into the season he was working. Ecology basically just put out the word in school that they needed somebody. He was a biology teacher in the school district and he was called, asked a couple questions and hired. Then he was told they needed some kids on the crew, so he went out and hired a bunch of kids, most of whom were probably football players. He said they were all male and there was no criteria, except that they looked fit enough. They didn't even have to apply. He basically picked some kids in his classrooms, and those who showed an interest became the kids on the crew. All contact with the Spokane office was done by mail. No one met face to face. He worked with

those kids the whole summer. They drove in a station wagon with its blinkers on. No traffic signs, no safety cones. The kids walked in a line next to the vehicle that was, basically moving forward in idle, creeping down the road, with the kids' backs to traffic. He decided what hours they were going to work, and the program gave him a few supplies and just told him to go find litter. They didn't have gloves or other protective gear. The kids picked things up with their bare hands. There are all kinds of things that have changed over the years, but it was a kind of free-for-all back then.

JS: Gary, what message would you want the readers of this chapter in Ecology's history to take away with them?

GL: For one, our Ecology Youth Corps program has provided an excellent job for young people, and we've given thousands and thousands of kids the opportunity to not only make some money, but to make Washington a more livable state. We need to have less people throwing litter out. I would especially like to see something done about the increase in bodily fluids and other obnoxious human waste that is out there. We are not only finding urine bottles by the thousands, but we are finding more and more solid material, too, and that needs to be addressed. Another thing I'm concerned about is the amount of drinking and driving going on. We go down some roads, and we can't take a step without picking up two beer bottles. There are a lot of issues that involve what seems like a minor environmental problem with litter, but I believe we can certainly increase our economy by making this a cleaner state, not only a place where people want to live, but a place where people want to visit and recreate, and want to come back to again and again. If you come to a pristine area and find it full of illegal dumps, urine bottles and beer cans, that takes away from that experience. You're not likely to come again. I'd like to see more of our citizens with an environmental ethic.

JS: As you were talking about the amount of drinking going on, I began to wonder, aside from the Environmental Protection Agency, has there been an attempt within your program to partner with other entities to increase the dollars spent, so to speak, to do joint campaigns, or something that would benefit both entities?

GL: I know we've worked a bit with the State Patrol on the litter campaign, trying to get State Patrol officers to give more tickets, but I don't see that we've done anything with the drinking issue that's very prevalent. I think partnerships with other groups are good. In Spokane, I normally hold a monthly meeting with the other litter programs in the county. I've recently assumed Community Litter Program grants for the Eastern counties, which means I'll be meeting with the county litter control people to coordinate our efforts and seek innovative solutions. It's working out pretty well. We're not wasting gas by sending crews to a site that we think is dirty, but, as it turns out, was just cleaned up the day before by some other crew. We can only increase our efficiencies by working together.

JS: What do you think still needs to be done today to enhance or continue the program successfully?

GL: I would like to see some more work done on prevention. I still get about, in the Eastern region, seven bags per mile. That's counting both the big highways and the little highways, and we go over pretty much the same ground. So, I haven't really seen a reduction in litter. I really think people need to be educated. I'd love to see the Youth Corps get involved in more outreach programs, more prevention, somehow getting out and

teaching the people what they need to know about litter and why it's important not to litter, things like that. I'd like to see a continuation of safety, and more efficient methods of how we do things. I'd love to see more kids hired. I'd love to see more crews out there so more kids can experience EYC.

Overall, I think it's been a great program, and we've hired thousands and thousands of kids. We have kids who have gone on to work for Ecology in a permanent capacity. We've had kids who have gone on to produce kids who turned out to be EYC crew members. So, we're now getting close to a third generation for some of them. It's been a very successful program for a long, long time. I'm proud to be part of it.

A Lasting Effect

An interview with Bill Alkire
September 14, 2004


Alkire

Position held at time of interview:

Legislative Director and Policy Director for Governor Gary Locke, since 2002

(Employed by the Washington State Department of Ecology from 1972 to 2002)

Education:

- Graduate work in Business Administration, City University, 1982/83.
- Bachelor of Art in Education, Eastern Washington University, 1972
- Bachelor of Art in Urban and Regional Planning, Eastern Washington University, 1976

Joy St. Germain: In 1972, the Legislature passed the law that was called the Model Litter Control Act, Chapter 70.93 RCW, which was a permanent and continuous program to control and remove litter from Washington. The law also specifically addressed, as a purpose, creating jobs for employment of youth in litter pickup and related activities, and also stimulating and encouraging small private recycling centers. Can you tell me your impressions as to why this law was created, and how the law was carried out?

Bill Alkire: Across the nation, several states were introducing Bottle Bills where you'd pay a deposit on your soft drink or beer, whatever the bottle or can contained, anywhere from two cents to a nickel. The industry folks associated with soft drinks and beer and other things subject to this deposit didn't like the Bottle Bills. They worked tirelessly to oppose Bottle Bills in many states. Our sister state to the south of us, Oregon, had a Bottle Bill. It was a kind of model for how a Bottle Bill program would work. Michigan had one, as did a few other states. Washington, through a ballot measure, elected to create the Model Litter Control Act. So, that's how it was really developed. Then the industry folks whose products contributed to the litter stream were the ones who ended up paying a tax on their gross receipts. The industries that pay the tax are very interested in the program's success.

I guess the days when I worked with the Model Litter Control Act were probably a little different from what they are now. We seemed to focus on educational programs, working through the schools. We also focused a lot on the Youth Corps and their cleanup along the highways. In fact, you still see kids out doing that, and that has an educational element as well as the very practical element of cleaning up the roadways. Then, of course, there was a promotional aspect, the different campaigns. Those were the primary components, and it wasn't long after I was reintroduced to the Litter Program in 1988 as the Program Manager that we really started incorporating recycling and waste reduction. That made the program all the more interesting to administer.

JS: So, the incorporation of recycling and waste reduction was with the Waste Not Washington Act—as we lovingly call it—in 1989. That's when I remember working with you.

BA: We did that together, that's right.

JS: Bill, what are the accomplishments or elements you're proud of as part of the Litter Program, and, then, what would you say were the greatest challenges you faced in administering the program?

We absolutely worried about having a bunch of young teenagers alongside a freeway with cars going by at 70 miles an hour and who knows who is in the driver's seat. Another challenge was in assessing whether the program was providing the on-the-ground results we hoped it would.

BA: It's hard to define just one thing, but having the successful Youth Corps Program is easy to point to because it was very measurable in terms of numbers of kids employed, and the number of kids introduced to environmental awareness through some very hard labor while being introduced to a work ethic at the same time. I think that did have a very positive impact and, hopefully when drivers saw the kids out there, they'd think twice before they threw something else out the car window. This relates to the second part of your question, the greatest challenges. As an administrator of the program, I found the safety aspect, not to mention the logistics of that program, tremendous challenges. We absolutely worried about having a bunch of young teenagers alongside a freeway with cars going by at 70 miles an hour and who knows who is in the driver's seat. Another challenge was in assessing whether the program was providing the on-the-ground results we hoped it would. For education programs, how do you know you're getting the desired results? Our biggest focal group was always males between something like 14 and 27 years old. Were we making a difference with them? Were they just ignoring the message while dropping their litter, soda can, or beer bottle, on the ground? That was hard to measure. We did litter quantifications that provided very accurate results of how well we were doing, but knowing what was contributing to increasing litter, or decreasing litter, was a hard thing to understand. Other programs at Ecology are much easier to determine as to the relationship between the action of the agency and impact to the environment. So, the problem of measurement was a challenge because, in the end, you were responsible for spending a lot of taxpayer dollars on a problem, and the citizens deserved a measure of success. As a manager, I felt it was my duty to get the best results we could possibly get from those

dollars. Sometimes it would just be difficult to equate the actions of the program to the results of the quantifications.

JS: Bill, how has the program increased public awareness of the need for waste reduction recycling litter control?

BA: If you think back to the beginning of the Youth Corps, in 1970-71, the number of children, who are now adults, who participated on clean-up crews and exposed their friends to their war stories as a litter crew participant—those memories of their first job as a "litter gitter" out there on our state highways—that has a lasting effect. We all remember our first jobs. We hope that the youth corps experience has a lasting effect, fosters some understanding of the environment, and has a strong impact in terms of littering and recycling. The kids had their war stories about finding hypodermic needles and dirty diapers and all this horrible stuff along the road—again, back to that safety issue—but I think those people who were kids then, and who are now in our society as adults, have an increased awareness, and they got that from this program way back when. Has the program increased public awareness? I would hope it has. Can I prove it? Probably not, but I think what I've seen going on recently in the last few years has been real fun, such as the billboards and ads on television, focusing on getting tough with litter control. "Litter and it will hurt." I like it. I think it's a good message.

JS: What about that enforcement piece? How is litter control enforced? Can you talk a little bit about how that was accomplished?

BA: Well, litter enforcement has an interesting history because it's gone full circle—at least one aspect of it has. When it first started out, the Model Litter Control Act required a fine for littering. I believe it was $200. We found that the officers, especially in mid- to late-'70s and into the early '80s, didn't write the tickets because they felt the fine was way too high. So we dropped the fine down to $10 for a number of years, hoping that there would be more tickets for enforcement. I don't know if that increased enforcement. I got away from the program and never saw any results. I do know they changed the law back to $200 again, hoping to send a stronger enforcement message. Then, in terms of enforcement, there was the litter hot line, and you could report somebody for littering. The person that got reported received a letter from the Department of Ecology saying, "You were observed littering and could be subject to a fine." I think that was an effective tool. I remember we'd get some very irate responses from people who got a letter.

JS: Didn't you have some agreement with the State Patrol?

BA: We did. I worked on several contracts when I worked over in the Spokane office. One was Spokane County, another was with the City of Spokane and there was also one with Adams County. We had a couple of other counties where we hired either a full-time or part-time member of the police department. Part of their job was to enforce litter laws and illegal dumpings, and they spent a majority of time on illegal dumping. I think the enforcement programs were very successful. The officers also would go to the schools and talk to the kids about enforcement of the litter and recycling laws. I can't remember the number of times that somebody was cleaning out their back yard, or whatever, and a had collected a couple of pickup loads full of stuff that needed to go to the dump. The father or mother would give their son $20 for the dump fee, and he would put the $20 in his pocket and take the pickup out to the old abandoned road and dump it out there, and mom and

dad would never know the difference. Well, a month later or two months later, our litter control officer would find it. Somebody might have reported it being on private property, and they would find names and addresses in the garbage, and sure enough, they would find the culprit. Remember Arlo Guthrie's "Alice's Restaurant"? Usually what it entailed was making whoever was responsible come back out, clean up the litter and take it to the appropriate site. So, enforcement did send a message.

JS: You touched a little bit on this topic of funding. My understanding is that there is a Waste Reduction Recycling Litter Control account that funds the program from a tax imposed upon various organizations and industries. I know that Ecology works in partnership with local governments and other state agencies as well. Perhaps you could talk a little bit about how active cooperation occurs with all these different entities to accomplish the goals of the program.

BA: Well, I'll divide the question into the state side and then the local government side. Let me just touch base with state. The Department of Ecology works with State Parks a lot and the Department of Transportation, in terms of the litter control cleanup. One of my favorite Model Litter Control stories involves Transportation. We had the kids working along the highway, filling bags, and then they'd pile up these bags of litter alongside the road. Then the Department of Transportation crews would come along, pick up the bags, take them to the landfill and dump the bags of litter. At one point in time, the Department of Transportation told us that the expense of having to take these to the landfill was a little much for them, and they wanted us to pick up the landfill bill out the Model Litter Control Act. They actually were thinking about charging us some for their maintenance workers. That was a major problem for us because that would eat up a great chunk of the money we used for hiring the youth. We pointed out to them that it really wasn't our responsibility to clean up the right-of-ways of state roads, it was theirs. We said we would be more than glad to move off all state roads right then and they could have their own people, at about five times the wages, pick up along the right-of-ways, and we would work with the cities and counties and parks and other places. Well, that was the end of that debate. They continued to take our bags to the landfill and were very cooperative after that.

In terms of working with the local governments, we worked with the litter officers, as I mentioned before, from the different cities and counties. Also, we worked a lot in the later years, at least in my career, with the recycling and waste reduction efforts of local governments. Those were enjoyable times, working with those types of program, because we were just getting recycling running in the state of Washington with the Waste Not Washington Act. So, we were trying to get these local governments up and running while not putting these private entrepreneurs, who had been doing recycling, out of business at the same time. I remember once, during a meeting with local governments—they were mostly the landfill operators, public works people—we were talking about the merits of recycling and waste reduction, when they realized that meant less garbage coming to their landfills and less tipping fees, which meant less revenue to the counties. They were, all of a sudden, not so sure they wanted to participate in any waste reduction and recycling program. The tipping fee, for those who may not know, is what you pay at the landfill when you dump your garbage. That put an interesting twist on how you'd manage waste reduction and recycling efforts with local governments. For the most part, I thought our relationships with local governments were really good.

JS: How have you measured progress on the goals of the Litter Program, and, in that regard, has it been a successful program?

BA: I don't know what the Department of Ecology is doing now to measure, but at one point in time we had a measurement system that was crude, but I thought it worked reasonably well. We would do what's called the litter quantification, and we would have an area, a designated area, cleaned up and every type of litter was quantified. We'd categorize the litter, determine the volume, and we would weigh it. We had a very precise numbers for the volume of the amount of litter in that area. It could be a stretch of a road. It could be a parking lot. It could be a vacant lot, or whatever. Then a year later, we'd come back and we'd do the same areas, and the next year after that, we'd do the same areas again. So, we were looking for trends, not dissimilar from what you'd do with ambient water quality monitoring. You're going back to the same spot looking for trends, and we certainly didn't run our Youth Corps right over the quantification site the day before we did our quantifications. We kind of kept these two parts of our program separate and apart so that we could get an accurate evaluation of how the program was doing. I thought the quantifications worked reasonably well. Today, I'm just not sure if they're still doing those, or how they determine if there is less litter on the roads. Now you have to—as we did then—factor in the increased traffic, and increased populations. That makes the calculation difficult, of course, but you do need to show results not only to the public, but to the industry folks who feel as if they're paying for the Litter Program. It's good and important for them to see results, and if you can show it through actual numbers that are quantifiable, that certainly helps.

JS: You'd say that it has been a successful program?

BA: I do think it has been a successful program. I think back to the Bottle Bill in the state of Oregon, for example. I think they still really embrace and like the Bottle Bill, and they're proud of it. I don't know if the citizens of the state of Washington have that same kind of ownership, but it is hard to find aluminum cans littered along the roadside in the state of Washington, or even thrown in the garbage, because there's a recycling market for that. The dollar value of recycling a can is the metal value of that can. We keep it out of the waste stream, it saves energy, and it comes back to us in the form of another product or another aluminum can as an example. If you look at it from that standpoint, the program has been a big success. Glass, I don't know. That's a little tougher because glass is more difficult to recycle in the state of Washington. You obviously can do it through curbside recycling, that sort of thing, but I think it has a lot less value at your local recycler than aluminum does. At least it used to be that way. So, I guess, all in all, I do think the program has been successful. I think it has been successful in how many people it has touched over the

So, I guess, all in all, I do think the program has been successful. I think it has been successful in how many people it has touched over the years with an environmental message—usually focused around litter control recycling, and waste reduction—but there's a stronger message of environmental stewardship and environmental awareness that has been associated with the program that it probably doesn't get the credit it deserves.

years with an environmental message—usually focused around litter control recycling, and waste reduction—but there's a stronger message of environmental stewardship and environmental awareness that has been associated with the program that it probably doesn't get the credit it deserves. The originators of the program probably never even saw that as a byproduct, but I truly think it is.

JS: What do you think are priority areas for focus that would further the goals of the Litter Program, if you were still in charge of it?

BA: One thing that would be a priority area for me is the unsecured loads. We worked on it a lot when I was in the program. We hear that in the news in recent times, when somebody loses something out of the back of their pickup. We usually hear it in terms of a catastrophe problem on the freeway, if somebody's injured dramatically, but we really have an unsecured load issue, and it happens all the time. We have laws that folks are not supposed to have stuff flying out of the back of their pickup. That's even a separate law to the Model Litter Control Act. It's against the law to drive a vehicle losing its load. Where I live, when I drive into town, I go past the Thurston County Landfill area. It's what you'd call the dump road. If you see the amount of material that's along a dump road, it's always a lot more than on any other road because things fall out of people's vehicles. So, I guess in terms of priority, unsecured loads would be at the top of my list. I also like the idea of continuing to focus on those males who seem to be a primary problem. I think the program has done an excellent job in the last number of years of a hard-hitting, humorous public service announcements, billboards, and ads. I thought that was a good move.

Beyond that, it's been so long since I really sat down and thought about how you work the priorities again. I would definitely want to look at how you can enhance markets for recycled goods. This state has a wonderful recycling ethic, I think, all across the state. It seems the difficult part is in stimulating those markets. There are things that we take to our curbside for recycling that have minimal to almost no recycling value in the marketplace. There are many, many reasons for that. In the old days, we focused on markets through Trade and Economic Development, but it continues to be a big issue in terms of priorities.

JS: Bill, I understand that some former litter crew members became permanent employees, which, in my view, being in Human Resources, is a great recruitment tool. In terms of recruiting litter crew members, how does that happen, and what did the litter crew members do on the job? What do you think they learned?

BA: We've kind of touched base on that a little bit, when we talked about the overall environmental ethic, which, knock on wood, I hope the kids learned when they were on the crews. The main idea is to select the kids. I think it's kind of a random process at the first cut, but then they go through an interview process. So, it's good for the kids to have to go through an interview process. It's probably their first time, filling out a job application, and doing a job interview. I think those are key life skills that the kids learn. Yes, some of them have definitely gone on to careers at the Department of Ecology. It would be nice to think that their enlightenment as to the environment was perhaps partially due to their work as a "litter gitter." You don't really know that, but they certainly got an introduction, and what I haven't mentioned is how important the crew supervisors were. These were typically young adults, but not always, who managed these crews of young teens. What they learned from their supervisory responsibilities with these kids, what they learned about the environment

and their frustration with litter, was lasting to them. Many of those people are the ones who could, more than likely, get picked up by the Department of Ecology. They might not have had a defined interest in the waste area, it might have been an interest in water, but through their experience on the litter crews, they may have been introduced to staff who worked in Water Quality or in Water Resources, and who gave them an opportunity, perhaps, to have a career in that area later on in their life.

JS: Bill, I know that there are priorities in the Solid Waste law that describe the order in which the collection handling and management of Solid Waste should occur, as applicable with Waste Reduction being the No. 1 priority. How does litter fit into the priority order, and in that regard, how is litter viewed by private industry, and governmental organizations responsible for solid waste management?

I don't think an executive at a fast food corporation ever appreciates seeing their wrappers or cups strewn about. That doesn't do their industry, and their particular business, any good.

BA: How is litter viewed by the private industry? Well, I don't think litter is a huge issue for the Boeing Corporation, for example. They don't pay the taxes on the Model Litter Control Act. The fast food corporations in the state of Washington, the food stores in the state of Washington do, and I think it is a much bigger issue from them. I don't think an executive at a fast food corporation ever appreciates seeing their wrappers or cups strewn about. That doesn't do their industry, and their particular business, any good. So I think they're very much interested in the Model Litter Control Act. But, if you work with Boeing, only as an example, they are very interested in hazardous waste management. That's a big part of their industry. That's a big expense to their industry. Across the board, the reduction of waste, waste reduction to an industry, whether it be a McDonalds or a Boeing, is money in their pocket, and they realize that, and the same could be said for recycling. Through waste reduction and recycling, many industries in this state can actually improve their bottom line, especially if you're talking about hazardous materials, by reducing their liabilities associated with those hazardous materials. Also, nobody's ever proud of being a big waste producer. So, the onus is on all of them to manage their waste the best they can, and waste reduction and recycling is a good way to do that.

JS: There was a strong school program that was established as part of the litter program. Can you talk a little bit about how the school programs work?

BA: We had several. I had an education background. So, I joined Ecology being very comfortable with working within school systems, and we had some programs that worked directly with the schools back in the earlier days. Most of those programs have been abandoned, and I'm not sure just how they're working with the school systems directly or indirectly now. But in days gone by, we had, very early on, Professor Rettil, a program that was an earlier version of a multi-media program. It didn't work too badly. I was never really enamored of it. Others from those days probably were, but it was OK, and some of the schools liked it. One of the problems was that it had too much machinery associated with it. There were just too many places where something could go wrong with the machinery. We incorporated, a few years later, a character—and I call him a character because he was—named Cascade Jack. He was an actor who dressed up as a mountain man.

He would go to school assemblies and talk about the values, from a mountain man's perspective, on littering and recycling and the environment in general. He gave an environmental message, directed toward the younger grades, focusing on things they could really relate to, like throwing gum wrappers on the ground and that sort of thing. It worked pretty well. He had his buckskins and his coonskin hat just like Daniel Boone, and he had a big old musket that he would fire. The kids always liked that part of the program. It had its problems, from a management standpoint, making sure a person we contracted with got to all of the facilities on time and in the condition he was supposed to be in to be at those facilities.

JS: For a time there was also an event called the "Spring Rally," which seemed to engage the general public for various community events. What was that about?

BA: Spring rallies were cleanup events in different communities, and, you know, pick an area. You still see it today. They don't necessarily call it Spring Rally. You've heard of Earth Days over the years. I don't think we're having as many celebrations around Earth Day as we used to, but Spring Rally, Earth Days, they're all typically community events to bring attention to your community's environmental issues. In the early days, it was a cleanup rally where you cleaned up litter and helped with recycling programs and perhaps promiscuous dumping, as we liked to call it in those days. I think the Spring Rally has expanded beyond that to cleanup of stream corridors or wetland cleanups in a wetland area, perhaps including some work with salmon restoration. That's always a popular item, but I think originally there was a focus on some kind of environmental aspect for a community. Recently, we had a Day of Caring in Olympia. Much of that activity involved getting rid of invasive species in different parks, mostly the ivy that strangles trees. So, a crew of volunteers cut off that ivy and removed tansy and that sort of thing as a part of the Day of Caring. It comes by different names: Caring, Spring Rally, Earth Days, but it's a focus on your community in terms of environmental issues.

JS: What happens during the winter months? Do the litter crews actually pick up litter in the winter?

BA: There were far fewer winter crews when I worked the program, and I'm sure that's true now. The kids are in school. It's difficult, but sometimes we'd run winter crews who would help with public education efforts and some pickup, but heck, in Spokane you had 3 feet of snow on the ground, so it was pretty hard to do a litter pickup there in the middle of winter. For the most part, it was a summer program, but logistically it took until fall to wind it down, and in the spring it would rev up. The low point of the year for the program would be in the middle of winter.

JS: What changes have you seen over the years since the beginning of the Litter Program?

BA: I heard recently that we're still focused on the same group of folks, and that's males. We mentioned that earlier, but it's age, an age span that starts at age 14 or so, and they seem to be our biggest litter contributors out there. I find that interesting and frustrating, I guess. I'd hoped our message would have reached them and that they would be disposing of their litter appropriately, and recycling and thinking about their purchases in terms of waste material when they make a purchase.

JS: Or when they grew up, those males would then change their behavior in their 20s.

BA: You would hope so, you certainly would, but I don't know. Some things never change, and it's probably way beyond me to understand the internal dynamics of the young American male growing up in the wonderful United States, and why they would choose to litter. Hopefully, it's getting better than it has been, especially in the state of Washington. There is definitely an environmental consciousness here that we, as Washingtonians, can all be proud of, and I think the Model Litter Control Act, through those years, has contributed to that, and we should be proud of it.

There is definitely an environmental consciousness here that we, as Washingtonians, can all be proud of, and I think the Model Litter Control Act, through those years, has contributed to that, and we should be proud of it.

JS: Well, Bill, what message would you want the readers of this chapter in Ecology's history to take away with them? Any messages?

BA: An important message would be to understand that it's easy to criticize any of Ecology's programs. Criticism is always easy, coming from the outside, but this particular program has had many successes. No, litter hasn't been eliminated in the state of Washington. No, recycling isn't at 100 percent, and everybody isn't living and breathing waste reduction, but it's better. The Model Litter Control Act, and the programs affiliated with that, deserve some credit for that effort over the last 30-plus years, and I think that recognition should be out there. I think it has served our state well. I am not a proponent today of the Bottle Bill. Perhaps somebody could change my mind sometime, but right now I like the way our recycling is going. I'm frustrated a little bit about plastics recycling because there's so much use of plastics. I worked a lot in the marketplace for plastics, and there is a market. Typically the problem is all the different types of plastics, but more importantly, the compacting of plastics. It costs too much to transport it as a baled product that really needs to be compacted to have enough value to make it worthwhile. Anyway, the message to readers of Ecology's oral history is that this law has been successful over the years, and, hopefully, under the appropriate management and guidance from future administrations, it will be even more successful. It has done a lot more than clean up litter and help with recycling. It has been a big contributor to the environmental awareness of the citizens of Washington state.

Chapter Four - Troubled Waters: Rivers, Streams and Salmon Recovery

Salmon are as synonymous with Washington state as cedars and rain showers. Unfortunately, as humans encroach upon salmon habitat, the fish are both victims of their popularity, as well as victims of human activity. Forestry practices, industrial and non-industrial forms of water pollution, population growth, harvesting, dams, and hatcheries all impact wild salmon populations. It's a story of declining numbers that begins, as one interviewee describes, over 100 years ago, with fur trappers whose livelihood nearly eliminated the beaver, an animal whose in-stream architecture proved vital to salmon habitat. Interviewees for this chapter—four of the state's leading experts on salmon recovery, water quality, water resources and watershed planning—discuss the complex history of both the political and environmental causes and effects impacting the fish's fate. Furthermore, they discuss the history of what has been done to monitor and combat declining numbers—from working with the federal government, Indian tribes and local government, to Washington state's own Governor's Salmon Recovery Office. It is a mission that has implications not only for the health of salmon, but also for the ecological stability of the entire state, especially the protection of Washington's watersheds.

Chapter Advisor: Dick Wallace, Special Assistant to the Director, Watershed Management, Washington state Department of Ecology

Interviewers: Emily Ray and Maria McLeod

Habitat, Hydropower, Hatcheries and Harvest

An interview with Dick Wallace
September 13, 2004


Wallace

Position held at time of interview:

Special Assistant to the Director, Watershed Management, Washington State Department of Ecology, since 2001

(Employed by Ecology since 1981)

Education:

- Bachelor of Arts in Biology-Environmental Studies, Whitman College, 1975

Emily Ray: Dick, to help me with my research on this chapter, you loaned me two documents related to salmon recovery. One was "Extinction is not an Option," the other "The Assessment of Watershed Planning." Since skimming them, I'm beginning to see the magnitude of the effort we will be discussing. Could we start with you telling me your current title and providing a summary of your duties in relationship to salmon recovery?

Dick Wallace: I'm an assistant to Ecology's director, Linda Hoffman, and I deal with watershed planning and salmon recovery. I divide my duties into three lumps, the first one being watershed planning. I work with 40-some watersheds in the state, planning for both people and fish. Issues include water availability, water use, water quality, habitat and things like that. We have a cadre of about 14 watershed planners who work with these local watershed groups. I also work on statewide policy and budget issues. On the salmon recovery side, I sit on the Salmon Recovery Funding Board for the director. I've also been participating all along with the Governor's Salmon Recovery Office and the overall multi-agency experts who develop and push forward the different initiatives on salmon recovery. So, those are two main parts. The third component of my job is as a member of Ecology's Senior Management Team. I pick up other duties here and there. For example, I'm heading up our effort on Hood Canal on the low dissolved oxygen issue. I also sit on the Governor's Bio-Diversity Committee, which is really fascinating.

ER: It's been some years since I was acquainted with you at work. I recall that you had generally worked in water-related programs. What kind of environmental work have you done over the years?

DW: Out of college, I worked for the U.S. Fish and Wildlife Service, checking steelhead and steelhead fishermen right after the 1975 Boldt Decision, which was a historic federal court decision that basically upheld the tribal treaty rights to the catch of half the fish within their traditional fishing area. Then I worked with conservation districts mostly on agricultural issues, both working for and with the State Conservation Commission. Over the years, I've done a lot of what's called nonpoint source, water-quality work for forestry. That's pollution that does not come from a pipe, instead it comes from diffused sources of our daily activities.

As I worked my way up through the management ranks, I dealt with water-quality standards, water cleanup plans, watershed planning for water quality, storm water—that kind of work—and the legislative policy issues. I also negotiated both of the Timber/Fish/Wildlife Enforcement Fish Agreements. I've had three acting program manager stints, two with the Water Quality Program and one with the Water Resources Program.

ER: It sounds like you have all the tools for the multimedia job.

DW: I enjoy that kind of work, both the complexity and the inter-jurisdictional nature of the multi-agency aspect. I really think that's where the future lies. The more we can do that, the better off we'll be.

ER: It is evident from your position at Ecology, as an assistant to the director, that salmon recovery is a strong focus for the agency. What were the factors that triggered the need for salmon recovery?

DW: A lot of people would point to the Endangered Species Act (ESA) of 1973, but I think it goes back much before that. The populations of wild salmon, in particular, have been on a sharp decline for quite a while, for about 100 years actually. In salmon recovery we talk about the four H's, which are habitat, harvest, hatcheries and hydropower. Habitat includes rivers and streams as well as the marine waters. Salmon need cold, clear water and woody debris in the streams for spawning and rearing. Those areas diminish with the impact of

our everyday activities, development and population growth. Then there's the hydropower side. People know that dams can block passage completely, such as Grand Coulee Dam's blocked passage to the entire upper Columbia River watershed, which covers a huge geographic area, resulting in lost habitat. We have hundreds of dams around the state. The issue with fish survival and hydropower is not so much the adult fish going up, but the young fish coming down. Either they go through a turbine, which has a mortality rate at every dam. Maybe it is only five percent, but if you multiple that, depending on which salmon run, by several dams, that takes a nick. Hatcheries, another one of the four H's, have been used themselves to mitigate for things like dams. There is still an ongoing debate on the effect of hatchery fish, which are seen either as a competing for food, or spreading disease, or having various kinds of genetic interactions and weakening of the gene pool. Then there is the harvest, where the numbers are reduced by commercial or recreational fishing.

Interestingly enough, I read book called *Salmon Without Rivers,* by a renowned fish biologist named Jim Lichatowich. He actually said that the first impacts to salmon occurred when fur trappers first arrived here and were trapping beaver out of the watersheds. The beavers provide a habitat function, particularly in building pools and slowing water. They actually shape the landscape. That was the very first impact, at least from non-native people, for the salmon. So, it's been over 100 years of everything from habit loss to hydropower, to harvest and hatcheries.

ER: So what triggered the agency's focus on salmon recovery?

DW: I mentioned the Boldt Decision, when the courts decided that 50 percent of the fish should go to the tribes. That was the first time people were asking, well, how many fish are people harvesting commercially and through sport fishing in addition to the tribal catch? They wanted to figure out how many to divide in half, if you will. And they didn't know that number. It was the first time people had looked at the whole issue of harvest, in particular, but also the hatcheries and the habitat to find out just how many fish are there. I think that was as much an early driver as anything else. Then, of course, there was the ESA, as I mentioned. We had listings early on that are now over a decade old of the sockeye salmon that go up the Columbia and Snake Rivers. But, much of the salmon recovery predates the ESA. It certainly has become much more intense in the last five or six years, with the state understanding and living through significant effects and controversy around the spotted owl, wanting to get out ahead, if you will, of the ESA, to position ourselves to have good recovery plans. We wanted to have good work in place so it wouldn't be such an imposition of a federal law and federal agencies. In fact, we have been building on that strategy ever since. You saw Governor Locke's Salmon Recovery Strategy "Extinction is not an Option." It probably took up to two years just to get it done; so, we've been at this a while.

ER: What can you tell us about the Endangered Species Act and the salmon listings?

DW: The designations "threatened" and "endangered" are an artifact of the ESA. That's a federal act. In order to be listed as either threatened or endangered, there's a petition process, depending on what kind of fish or animal it is, to either the Fish and Wildlife service or NOAA Fisheries, which is the National Fisheries Services. The technical review they look at—and they have a number of criteria—are called "viability distribution." So, not look at just the sheer numbers, but genetic types. So, they divide not just by species, but by

what they consider the evolutionarily significant units, or kind of a population, if you will, in the distribution around a habitat. There are a number of factors, and it's a formal process.

Carbon tracking studies have shown that, as these animals eat the fish then defecate, they deposit nutrients that the fish provide all through the riparian zone in the trees and bushes as well. So, the salmon carcass themselves are important food for other animals, and an important fertilizer for the riparian zone, the streamside area. It's a big cycle, with the carcasses themselves fueling a larger ecosystem.

In the state of Washington, we have quite a variety of different salmon. Bull trout are listed as threatened throughout most of the state. There are places in the Columbia Basin, central basin, where there is hardly any water, but for the most part, bull trout are listed around the state. We have, in the Snake River located in the Southeast, for example, steelhead listed as threatened. Sockeye is endangered. Spring and summer Chinook are threatened, and fall run Chinook is threatened. So there is quite a variety, and in the Puget Sound area, it's king salmon. So, this affects every kind of large watershed. And in Washington, they divide it into broad chunks like the coastal area, the lower Columbia River, the middle Columbia, the Snake River, and Puget Sound. There are 20-some listings, when you combine the different species and their different geographic watersheds.

ER: What is salmon's significance to our ecosystem?

DW: The best example of their significance is the salmon carcasses themselves, in that they die after spawning and the carcasses provide food for the bugs that the little fish can eat and even direct food for young rearing fish. They also provide food for bears and seagulls and birds, you name it. They actually cycle nutrients out of the ocean, through their bodies, into not only the food chain though carcasses on the banks that help fertilize vegetation. Then the bears and foxes and birds consume the fish. Carbon tracking studies have shown that, as these animals eat the fish then defecate, they deposit nutrients that the fish provide all through the riparian zone in the trees and bushes as well. So, the salmon carcass themselves are important food for other animals, and an important fertilizer for the riparian zone, the streamside area. It's a big cycle, with the carcasses themselves fueling a larger ecosystem.

ER: I was told that our former deputy director, Terry Husseman, was interested in finding something like the atomic clock to demonstrate environmental health. It seems to me that, with salmon, you have the daddy of indicator species. Can you tell me, what are some of the resources for which salmon work as an indicator?

DW: In a lot of respects, salmon is the granddaddy of an indicator species. Although there's part of me that says, when you really look at the public opinion, the strength of the support for water quality almost is more durable, if you will, than the strength and support for salmon. But as far as serving as an indicator of environmental health, there's no doubt that salmon have a diverse life cycle and they touch so many parts of our environment. They're up pretty high in the headwaters of watersheds in the spawning phase and rearing

phase of the young. Then they migrate out, all the way out to the ocean. It's incredible to think of the fish swimming. I mean it's hard enough to drive on the freeways going 70 miles an hour. Imagine swimming all the way to Idaho, up the Columbia River, up the Snake River, up the Salmon River. So, by virtue of their life cycle, they're covering multiple states, counties and jurisdictions all the way out to the ocean. The tough side is the complexity. You can do a lot of good salmon recovery work up in the freshwater habitat, and you get return fish. But, as we've seen more recently, it's hard to tweak out how much of that can be attributed to good ocean conditions and how much of it is because of other aspects.

When we look at salmon numbers, it's hard to pin down what those numbers are. We look at other surrogates we know are important, particularly the water-quality index, the amount of water in the stream. I would say, yeah, salmon is a good indicator, but its more part of a package of indicators. It can be too easy to say, look, everything's working well because we've had good returns of fish. That may or may not be the case, although I hope we're doing a good job. It's just that, when you look at the number of returning fish, it's hard to say how much of that has been impacted by harvest, how much of that can be attributed to ocean conditions.

ER: How are the four H's, which you mentioned, stressed, used, implemented, and in what ways do they serve as the key to adaptive management? Do I have the meaning of adaptive management right?

DW: Actually I think the term adaptive management was coined early on by federal agencies in regard to the Columbia River. With adaptive management, you don't wait until you have the perfect knowledge to act. Instead, you set in motion certain actions, and then you track how they work. Are they doing what we thought they were doing? Is the result what we expected? Are the fish coming back? Is the water there? The key to adaptive management isn't as easy as rolling the words off your mouth, but having some discipline and structure to your actions. So, you decide, early on, what are the indicators that you want to look at in order to answer your policy questions. Then, as the data rolls in, you find out, yes, we are doing the right thing and, if it's the right thing, let's keep doing more of that. If what you did didn't necessarily work, then you'll decide not to do that anymore and try something different. That is adaptive management. The key is not floundering around, but to get that discipline in the system; move forward now; take action now; study what the effect is; see if it's working, and if it is, great, keep doing it. If it's not, change, adapt. And that's really the heart and soul of adaptive management.

ER: I realize Ecology is leading the watershed planning. If the recovery effort is multi-jurisdictional and it operates at the federal, state, local and tribal levels, what policy rules and enforcement actions keep it in place and on track?

DW: You're right that we're the lead in watershed planning, and certainly watershed planning is one of the big elements of salmon recovery. Watershed planning refers to looking at everything—from the mountains to the ocean. Everything we do affects the water that runs off after it rains. The aspects for which we have the most jurisdiction and responsibility here at Ecology are water quality, water quantity, water resources, shoreline management, those issues. As far as salmon recovery, one of the things that this administration did fairly early on was set up Governor Locke's Salmon Recovery Office and establish a key policy assistant in the governor's policy shop at the Office of Financial

Management. But, interestingly enough, when you really look at the overall lead, it's almost like a joint run. As I said earlier, the state decided they wanted to not wait for the federal agency, such as NOAA Fisheries and U.S. Fish and Wildlife Service to come in and be the lead for salmon recovery. That's the whole basis for Washington state's Extinction is Not an Option in the planned recovery of salmon. In fact, we're developing the formal recovery plans under the ESA, all of which are due in the course of the next year or less. The federal agencies have played a role, but I guess if you were to ask who has the overall lead, well, we want the state's destiny is in our hands. Yet, when it comes down to the formal lead on salmon recovery, it's going to be under the ESA, and that's going to be at the federal level with NOAA and the U.S. Fish and Wildlife Services.

When you think of salmon—again going back to the Boldt Decision—the tribes have been on board and pressing the issue for what they would describe as time immemorial.

ER: I understand it took a while to get the tribes involved in watershed planning. How was that accomplished?

DW: Each sovereign tribal government has a choice in participating in watershed planning. Some participate because they feel they have a seat at the table and clearly a stake in the water available to fish. In some cases, like the Nisqually Tribe and the Nisqually Watershed Plan, they've been leading the process of watershed planning for a long time. Their work predates the Watershed Planning Act or salmon recovery.

When you think of salmon—again going back to the Boldt Decision—the tribes have been on board and pressing the issue for what they would describe as time immemorial. I remember working with tribes when I started in Water Quality back in the late '70s. Clearly, with the Boldt Decision, they've had an active role and an economic interest in salmon recovery. To some extent, it's taken awhile on the watershed planning side. They've been on board on the salmon side since day one. Some tribes have chosen not to participate, they're concerned about the effects of the watershed plan and our decision affecting what they feel is their treaty-reserved water right in terms of the water for fish. In fact, in the process of establishing water rights on the Yakima River—what is called the "Acquavella Adjudication"—the federal court upheld that the Yakama tribe had a tribal treaty right to water dating back to time immemorial, when you think of water law where first in time is first in right. So, some of them don't want to be at the table because that they feel that may adversely affect that right.

"Spirit Child" Soul Salmon, sculpture by Loren White and Lane Quine. Photo by Frank Ross. Copyright 1999-2002, Tahmanawis org.

ER: Early on, you mentioned some key inter-jurisdictional agreements that have been reached and that you've been involved in a couple of them. What key conflicts have been resolved, and how did you go about them?

DW: I think probably the two biggest agreements were the Timber/Fish/Wildlife in 1986 and the Forest and Fish 2000, clearly, which was very comprehensive and complete. In these cases, the timber industry, tribes, states and federal agencies and environmental

community came together to craft informal agreements for how forest practices should be regulated under the state Forest Practices Act. The timber industry stepped up and said, you know, we hear public opinion, we see court cases, like the spotted owl which became the indicator species for the health of old-growth forest habitat, which was on the decline. Timber management is also here for the long-term, and we deal with 40- or 50-year rotations for trees. We need stability in our industry. We're willing to change in order to meet those other objectives and share our objectives. There was a lot of energy behind that, and it did result in a very complex, but very complete, comprehensive agreement.

ER: Could you describe the reason for the agriculture agreement and what it covers? For example, who were the key participants, and what conflicts have been resolved?

DW: On the ag side, the interaction was a bit different than with the others. They hadn't experienced the spotted owl, which had affected the timber industry. Different parts of the agricultural community continue to experience economic challenges. They're almost on annual rotations. It's just a shorter-term horizon in a lot of ways, both politically as well as the crops rotation. Their response was more along the lines of, we think we're good conservationists. We think we're doing good things, and we want to defend ourselves from these changes. So, the interest and willingness to change was not there the way it was with the timber industry. They hadn't, in fact, touched the burner. I use that analogy because it is like the little kid who touches the burner for the first time. The timber guys touched the burner with the spotted owl, and they know it's hot, and they don't want to do that again. The agricultural industry hasn't touched the hot burner yet. So, the ag agreement was split into two parts, and, in hindsight, it was smart to do that. It was actually the agriculture producers who chose to do that. The two parts being the irrigation districts and then the more traditional farmers. With fish and water processes, we were able to reach significant agreement on the irrigation district side. With the feds, NOAA Fisheries and U.S. Fish and Wildlife Service, on board, we had the conservation district folks on board and a road map—if local irrigation districts wanted to get their ESA card and Clean Water Act card punched, if you will—on how to meet the needs of both of those federal acts, they got a pass or assurances they were doing the right thing.

On the on-farm side, it was not nearly as successful. In fact, it would be hard to call it much of a success. We spent almost two years working on on-farm best management practices to prevent pollution and protect habitat. We decided to first focus on the Northwest part of the state and came up with a draft document that basically went into everything from how to maintain ditches to how to implement on-farm practices that were both salmon friendly and Clean Water Act friendly. But, in the end, the agricultural community rejected it. So, after spending a year and essentially having it ready for final approval, we weren't able to get there. We do have some good agricultural programs in place. There is federal farm bill money to help people plant trees along streams and things of that nature. It's all voluntary, which was what Agriculture Fish and Water started out as. It's the only way the ag community would come to the table. Again, in contrast to the timber industry, a very regulated community, we weren't able to get that, but what we were able to get to is a willingness on the part of the ag community to promote riparian buffers. By riparian buffers, I refer to the streamside area of trees and shrubs that filters sediments and filters pollution and then provides shade, which is necessary for migrating salmon to thrive. Since then, I'm not sure if that commitment even still holds. In fact, there's a Joint Senate Committee Session coming up next week on ag buffers. I believe that the agricultural

community, in their view of the science, feels that buffers along streams in agricultural settings aren't that important. So, while I wish I could declare a lot of success in the agricultural side of things, we've only had limited success. You get more attraction at the local level when you're dealing with the local farmers and that kind of environment. Working with their statewide representatives to try to negotiate a statewide deal, success just isn't there.

ER: We all know this in-stream flow—the non-consumptive water requirements that do not reduce the water supply, such as water required for maintaining flowing streams for fish—is critical to salmon recovery. What strategy will be followed if the stream's water is fully appropriated, meaning that its uses for irrigation and what have you are permitted, but the water level is not sufficient for fish?

DW: Well, we have three prongs to our in-stream flow side. One, is the setting of in-stream flows and then, as you know, in the case of determining the Yakima River water rights, an in-stream flow rule it finds its place in line so it's going to be junior to some and senior to other water rights that come after it. So, setting those flows is still important. Probably the biggest issue is achieving flow, which I'll touch in a minute. There's also protecting the water rights, determining whether it's a legal or an illegal use, gauging, and understanding what water is out there. It's such a seasonal thing, subject to snow pack and rainfall, but it's obviously a moving target. When it comes to actually achieving flows in cases where it's over-appropriated, meaning that the rights to water usage is more than the stream or river can handle. Then you have a more limited set of tools. The whole watershed approach, and the governor's Water Strategy, is to advance water for people equally with water for fish. So the idea is that, incrementally, you try and get at both. You can gain things through conservation, irrigation water management, and working with those groups to reduce the use of water and get more back in the stream. Setting up water banks, water markets, is the thing of the future. We're just embarking on that, where you can get willing buyers and sellers and move water around a little more readily when you're over-appropriated. We have efforts where the state will either buy up the senior water right or lease a water right. Then there's the state contribution to get cold, wet water back in the streams. There's still storage, which is expensive, and it's not always the traditional storage like dams and lakes, although there can be some of that, but what's emerging now is aquifer storage and recovery where you take some of the high flow events out of surface water storm and then pump it out later to make it available for people. And so there's quite a number of ways you can do that. In fact, you can use storage as multi-purpose, starting with building in the benefits for the fish when you develop a storage project as well as making it available for people, so while your tools are more limited, there still are tools there for over-appropriated basins.

ER: How long will salmon recovery take, and how will you know when it's done? How do you collect and manage data the same way amongst all these jurisdictions, which have their own systems in place?

DW: It's a very good question, and one that we're looking hard at ourselves because we don't have the answer, necessarily, to that. Again, part of the problem lies in the complexity of the four H's. I don't know how long it's going to take. Nobody with any confidence can tell you, because at the same time we work on recovery efforts, we have all the pressures of international markets, and, you name it, and it's just a different world we live in. It's hard

to predict. If I were to guess, I would say it would be at least 50 years before we'll even know if our recovery efforts are fully successful. I mean, you're dealing with fish with three, four and five-year life cycles, so you only get, in a decade, maybe a couple of generations, and that's too soon to understand if we have long-term recovery. To know you've got a trend would probably take a couple of decades at least, and so we're talking at least 50 years to understand the trends and implement recovery strategies and then see the final results. As far as how we're going to know when we're done, we're getting better at that. We're getting better at standard protocol. I mentioned earlier the Monitoring Oversight Committee that was actually created by the Legislature and that I was a member. We were involved in coming up with what was called the Comprehensive Monitoring Strategy where we needed to both get cross-program links done to achieve an improved integration of our work so we could understand and talk to each other better, as well as establish all the protocols. We laid out a very comprehensive request to the Legislature, a program that would have cost, we figured, $100 million. It was $9 million a year over the next ten years. Well, we're pragmatic, too, so we also came up what we thought we ought to do, which was more in the $10 million range. Unfortunately, and because of the tight budget times, we have only like a half million dollars. But as a result of that Comprehensive Monitoring Strategy, Governor Locke signed an Executive Order creating a Monitoring Council in 2003, and I represent the agency on that. It's co-chaired by Bill Ruckleshaus because he's been chair of the Salmon Recovery Funding Board and as well as Jeff Koenings, who's the director of the state Fish and Wildlife Department. We've been working and getting much better at performance measures as indicators of success, especially on smolts, which are the small salmon that migrate out to sea from the freshwater stage to the saltwater stage. We're tracking them, finding how well they're doing, which gives us a better idea of how many adults made it up into the watershed and how many little guys make it out. You have a better idea of what the habitat and water quality and conditions are in the water. So we're getting better at understanding whether things are working and gathering data, particularly for the Congress and the state Legislature who's been funding this, to the tune of a lot of money, and want to know how it's working. I think, unfortunately, they won't have a lot of patience when we say, I think it will take decades, keep spending the money. We don't have real good data on our indicators now, so we've got a challenge to demonstrate that we are getting things done, but we've been putting the mechanisms in place. We've funded what we're calling "intensively monitored watersheds." We pick a half a dozen watersheds around the state we think are representative of the rest of the state. We look really look hard at those watersheds to see if what we're doing is working. We have good linkages with the forestry and the salmon recovery. So, we've got a lot of people joining that to get, in some watersheds, a much better idea of how the fish are doing and if our projects are helping.

If I were to guess, I would say it would be at least 50 years before we'll even know if our recovery efforts are fully successful. I mean, you're dealing with fish with three, four and five-year life cycles, so you only get, in a decade, maybe a couple of generations, and that's too soon to understand if we have long-term recovery.

ER: What will keep the salmon recovery effort from falling prey to the whims of political change?

DW: Well, for one, public opinion drives politics, which then drives political change. In regard to water quality, people—whether they think of water in terms of drinking water or swimming—really resonate around the idea that water is life. People also have a good sense of place, and they're beginning to understand they live in a watershed, and they understand their part in that watershed, in as much from the water quantity and quality standpoint as the concern over fish. So, we have very strong public opinion, and that's what is going to carry us. That's what's going to carry the salmon recovery effort in the long term.

A fish swimming up a river goes through multiple counties, cities, even states or counties. In a water-short West, your boundaries ought to be watersheds. I agree, but you can't turn the clock back and suddenly have Skagit River County as opposed to Skagit County, as it is now. It's just not going to happen.

ER: When I worked in Ecology's Water Resources Program, years ago, I learned that the county boundaries often times weren't the best boundaries. I remember wishing that they were watershed boundaries. When it comes to salmon, it seems you almost need watersheds to be your political boundary.

DW: You're right. A fish swimming up a river goes through multiple counties, cities, even states or counties. In a water-short West, your boundaries ought to be watersheds. I agree, but you can't turn the clock back and suddenly have Skagit River County as opposed to Skagit County, as it is now. It's just not going to happen. For a lot of other good institutional reasons, that's how, jurisdictionally, they're set up, but regardless of jurisdictional boundaries, you're always going to have a challenge along these lines. It would have been a lot easier if we'd been set up on the watersheds, but we're not. Transportation would have crossed that anyway, regardless of how governments are organized. So, invariably, the challenge is in the multi-jurisdictions working together, and that's where I see great strength. That's what attracted me to this work. We have the formal legislative statutory direction and job to do and a government structure. Governance is really the key here in dealing across governmental lines where you can essentially start to work together in a watershed context within that government structure. And, in fact, I'm working with the part of the transition for the next governor, a proposal that would go into the briefing packet. It's all about governance, but talks about watershed governance and expanding what's been more of a narrow focus, like with the Salmon Recovery Funding Board, into more of a watershed focus. Tomorrow afternoon, I'll go with the Salmon Recovery Board to meet with the Oregon Watershed Enhancement Board for the second time in the last year. We're trying to learn from their model, which is more of a watershed model than a salmon model in some respects. I think water will make people work together, and governance seems to be the key to that. Water availability—and for some people that is more precious than others—is a worldwide issue and is going to force people to work together. I hope it comes sooner than later.

ER: If the salmon recovery effort is to succeed, it appears to me that there could be many changes in the way humans live and work. Could you paint the way life will be after all the strands of salmon recovery are in place and integrated into our value system and institutions?

DW: That's a big if, if it succeeds. I talked earlier about the amount of the landscape the salmon cover. In order to succeed, you're going to have to have reasonable environmental protection everywhere along the way. That, in and of itself, is going to be largely from nonpoint sources—the oil that leaks from our cars, the pesticides we put on our lawns, the fertilizer we apply to our fields, you name it. It's going to come down to individual commitment and people starting to think in terms of watershed health and their personal effect. That's a big thing, big change. We're talking about changing your everyday habits in a lot of ways. Then there are issues like sustainable growth. We've just got to find a way to build highways and develop mass transit in a sustainable way, and understand what that means. You've got to have the buy-in of business, and I experienced that with the difference between forestry and agriculture. Biodiversity is another issue. Not only do you need that kind of protection at these different sites, physically along a stream, but you also need the kind of habitat connectivity, which the streams really provide. We're going to have to have more areas that are critical for fish and natural resources and to protect those. I'm not a pessimist or I wouldn't be in this world, but we've got an uphill in front of us, and the hill is getting steeper to climb.

ER: And then you have the pressure to build housing developments in the flood plains.

DW: Yeah. When you build all of those, regardless of where you put them, you tend to affect the hydrologic cycle by creating impervious surfaces, like concrete and asphalt. When it rains, less soaks into the ground, and it runs off sooner. So you get more runoff during rainfall events of both high and low precipitation and less water to recharge the groundwater and provide water to the streams—as in a kind of time release—in the times of year when the streams may need the water the most, late summer and early fall. So storm water is one of the biggest issues. Another one is climate change, global warming, in that people in the state of Washington are going to start to realize, pretty quickly, how much the snow pack serves as our water storage and how much we rely on that. If the snow pack diminishes, we're going to see not only more and more drought, but less and less water available. So, I see storm water and global warming as probably the two biggest threats to salmon recovery.

ER: I have been trying to think about something that would have a similar impact on human activities as the salmon effort. The two things I thought of—they're not environmental—were the spread of railroads across the country and the national highway system, which was undertaken during the Eisenhower Administration, theoretically for national defense but really to populate the West, both of which have really changed the landscape. So, if salmon recovery works, it will cause a huge change in many of the ways we live.

DW: It would be a huge change in a lot of ways. In some ways, part of the success is to manage the mistakes that we made when we were building our railroads and our highways, which then led to our industrial and agricultural development. Not to necessarily point fingers, but people had those objectives, and those objectives far outweighed any potential

environmental objectives. It's only now that the broader environmental movement has come in. So, not only do we have to fix mistakes we made, which is very daunting because railroads don't change and highways don't change. You don't usually move them out, and you don't move people out. Do I see this as having a similar impact? Not likely. I mean you can look at the spotted owl, where we had a pretty heavy hand come in, and it definitely had both short and long-term impact. But, that said, it's not likely salmon recovery is going have that kind of change. I honestly think that water is going to be short, and water quantity is at the heart of some of the struggles in places around the world, for example the Middle East. People fight over land and water. I wouldn't point to salmon—and I'm a very fish-oriented, salmon-oriented person. I would point to water from the aspect of, let's hope we can protect our natural systems and salmon and aquatic systems. Because of the public support for water quality, in particular, and the need to have water for people, that's where we'll make the biggest change. So, I really think there is more power in the water aspects, if you will, than salmon. Now, salmon are part of that water, but maybe not quite as front and center as us. Some people would be motivated, like the tribes, culturally and economically to protect water. So, we're not likely to see that kind of a salmon effect on change.

ER: How do you appeal to people to do the right thing other than economic gain or paying for better systems for your storm water, doing agricultural practices correctly, or forestry?

DW: First, there are still non-tribal commercial fishermen, and for health-conscious people, fish are still a good thing. And the tribes certainly have a cultural and economic interest there as well. Economics also play a role. You're seeing it more now with, for example, organic farming, where the public opinion shows they're willing to pay a little bit more if they know it wears a green label, sustainable harvest. Economics will drive people's choices. If we're willing to work with them in an economic setting and realize that, we can get economic incentives to get people to do the right thing, if you will, for watershed health and salmon-recovery health. There's a lot of work to do there, but economics drive it. There are also instances of economic tradeoffs. For example, some people who want to use water out of the Columbia River realize that it isn't going to come without also helping the fish. So, people's economic interest is suddenly tied to helping the fish, whether they wanted to have that directly or not. Again, society's values will drive that. Suddenly, my economic future, whether it's to grow more grapes because wine markets are still good or doing something for fish, is tied to getting water in the stream. The other economic issue is related to quality of life, where living in the information age gives us more flexibility in where we work and live. So, a healthy environment is becoming a more important value. If we're saying, come live in our town because we're in the Northwest, we're so blessed with natural beauty, it becomes suddenly in our economic interest to protect that. Because if we turn into an LA, and I hate to pick on LA, quality of life as an economic driver won't be there. It remains to be seen, but I do think in the information age, that quality of life hopefully will become a more important value.

ER: How much longer do you think you'll be working on the salmon recovery project?

DW: Well, it will be interesting. Tomorrow is the primary election, and we know we're going to have a new governor. I think as far as the future of the salmon recovery, some of it will end, not all of it, with the next administration, both federally and on the state level. How much salmon recovery will there be to work on, it's hard to say. Again, I have great personal salmon interest, and that is a big part of my job. I still think that the momentum is

going to be on the water side, and I plan to be, or hope to be, working in watershed planning and that water will be as much a driver for the longevity. I really hope to finish out my career working on watershed health and salmon recovery. Getting back to governance, I think my personal and professional successes are multi-jurisdictional and multi-disciplinary efforts, where you're bringing in foresters, talking to engineers, talking to fish biologists. I really hope to finish out my professional career in this field. Then, as someone who started fishing when he was four years old, I will continue working with salmon recovery efforts.

Protecting In-stream Flows, Preserving Places to Spawn

An interview with Ken Slattery
October 18, 2004


Slattery

Position held at time of interview:

Section Manager, Water Resources Program, Washington State Department of Ecology, since 2005

(Employed by Ecology since 1976)

Education:

- Bachelor of Arts in Geography, Western Washington University, 1974

Emily Ray: I imagine that, as Project Planner for the Water Resources Program, some of your duties relate to salmon recovery. Related to that, what are your most important duties?

Ken Slattery: Over the years, I've been quite involved in salmon-related issues. In fact, my first job here at headquarters in 1976 was as a planner, working on in-stream flow programs and developing rules and working with the public to identify what level of in-stream flow should be protected for salmon and other fish. That has been a constant in my career over the years. I worked on in-stream flow planning from '76 through '85. After that, our entire in-stream flow program hit a wall, politically, and was basically put on hold for a long time—over a decade—because of the very hot politics that it implies. During that time, I worked on all that with various legislative committees and other task forces that were examining the issue of how to allocate water and preserve for salmon and other in-stream resources. Then, during the late '90s, early 2000s, when the Governor's Office was developing the salmon recovery strategy for the state of Washington, I worked with Hedia Adelsman, who, after leaving her job here, had gone on to the Governor's Office and worked in the Salmon Recovery Office. I worked closely with her in developing the water resources chapter in the Statewide Strategy to Recover Salmon. Later, in my budgetary capacity, I advocated for salmon. When we got them, I managed dollars related to salmon recovery for things like buying back water rights, paying for projects that would conserve water, in particular, for the benefit of salmon. Throughout the early 1990s, I was heavily involved in working with folks in other agencies to develop what's called the Yakima

Enhancement Project federal legislation. That was passed in 1994 by Congress. That bill provided monies for about $150 million worth of improvements to the Yakima Basin water facilities, aimed very heavily at providing better conditions for salmon, including habitat for salmon and steelhead in that basin. Early on, in the listing process for endangered fish, I prepared briefing papers for the Ecology's managers, noting that this was going to be a pretty big deal, and indeed it was. The original listings were proposed for the Snake River sockeye and Chinook in 1991. We began to think, at that early stage, about what the implications might be for the department. Of course, those are still unfolding as we talk, on the federal side, and our program has had to make some adjustments in the way it does business. So, over time, we responded to that.

ER: You mentioned that in '85 the in-stream flow work you were doing was put on hold politically. I'm curious why.

KS: You probably recall the State Ecological Commission, which existed back in those days. Well, the Ecological Commission was set up under the same statute that established the Department of Ecology. I believe there were five members on the commission who were appointed by the governor. They represented a variety of stakeholder interests, ranging from business to environmental advocates. The commission's purpose was to be an advisory body to the department with regard to, among other things, the making of rules. It was in the '84-'85 timeframe, and we had gone through this in-stream flow program, marching from watershed to watershed, establishing in-stream flows and developing a program for the basins that drain into the Hood Canal from the Olympic Peninsula in the Skokomish-Dosewallips area. We were seeking to adopt the proposed rules that we thought were actually quite restrictive, but the Ecological Commission moved to veto those rules on the basis that they were not restrictive enough. At the time, Director Andrea Riniker decided that we should maybe back away a little bit and take a broader view of the entire program to set in-stream flows and allocate water in general. So, initially, the department did that, putting together an advisory group and drafting an environmental impact statement (EIS). Over the period of about three years, the group met quite a bit, but did not reach consensus. So we went forward with our EIS and published a draft. That draft included five major alternatives for how to deal with in-stream flows and water allocation. Then, in 1987, we published a proposed preferred alternative, finalized the EIS, and, at that point, the politics got red hot. The Legislature had established the Joint Select Committee for Water Resource Policy and slapped a moratorium on us to prevent us from moving ahead with the rulemaking and the completion of the EIS. Also, at the same time, they placed a moratorium on the issuance of any new surface water rights, so it was quite a watershed point.

Actually, between 1985 and when this happened, we did adopt one more in-stream flow, and that was for the Nooksack Basin in northwest Washington. It was not opposed by the Ecological Commission, oddly, even though, in my opinion, it was not quite as protective as the one that we had proposed for the Hood Canal streams. But, nevertheless, this pretty much brought the effort to establish in-stream flows to a halt because of the very difficult situation we found ourselves in, initially, and then on an ongoing basis.

ER: What removed that logjam?

KS: In my opinion, it has never been completely removed. The issues that we came afoul of are still unresolved. The Legislature, although attempting to many times, has never really clarified some of the ambiguities that are in the in-stream flow statutes. So, those issues are still out there, and they're actually still being wrestled with now by local watershed units that have been established under the Watershed Planning Act. But, in my opinion, those issues are still out there and still are, I believe, somewhat of a threat to making further progress on this issue.

ER: What exactly does the department do when it studies the watershed? What are the goals and what is the process?

KS: Well, for example, when I first came to the Department, we were working on watershed plans. In fact, the first one I was involved in was the Colville watershed. We called them "basin plans" at that time, for the Colville Basin, and we completed, I believe, comprehensive plans for about five or six watersheds back in those days. The approach taken then was that the department was the moving party. That is, we were taking the action to develop these plans under the Water Resources Act of 1971, which authorized such plans. We would establish an advisory committee and consult with them over the period of about a year and then work with them to develop a rule, and those rules would address those in-stream flows, as well as future out-of-stream needs. Often times we would set aside water for specific beneficial purposes to be used and be developed in the future.

ER: How did you select the advisory committee members?

KS: My recollection is that we would hold a public meeting, initially, and ask people to come forward and volunteer. We wanted to make sure those with an interest in the basin, each major stakeholder group, was represented. What I just described occurred from 1974 through '79. Starting in 1979, Wilbur Hallauer became director. He had been instrumental in the passage of the Water Resources Act and wanted to accelerate the establishment of in-stream flows in particular. The Attorney General's Office was in agreement with this also because the U.S. versus Washington case was moving through the courts. That's the case that the Boldt Decision was a result of, where the Indian tribes were found to have the rights to 50 percent of the harvestable salmon. Phase II of that case, which ran through the late 1970 and early '80s involved the courts deciding whether the state had an obligation to assure the protection of the habitat of the fish that the tribes had a right to. There was a desire on the part of the state, not just in this area, but in many others, to make sure that it was doing the proper thing, getting its act together in terms of preserving water for fish and other habitat elements for fish. So that signaled a change, where the basin planning program went from being a comprehensive water plan to a point where plans became more focused on setting in-stream flows. That in-stream flow phase then went from 1979 through 1985 when we ran into the difficulties that I've already described. In the meantime, we adopted in-stream flows, I believe, on about 12 additional watersheds, and they were really among the more

There was a desire on the part of the state, not just in this area, but in many others, to make sure that it was doing the proper thing, getting its act together in terms of preserving water for fish and other habitat elements for fish.

critical watersheds for salmon in Western Washington, and certainly in Eastern Washington. The watersheds addressed included the Nooksack, Snohomish, Cedar-Sammamish, Duwamish-Green, Puyallup-White, Chambers-Clover, Nisqually, Deschutes, Kennedy-Goldsborough, Kitsap, and Wenatchee basins. The Skokomish-Dosewallips would have been the 12th basin, but as I said before, adoption of that rule was blocked by the Ecological Commission.

KS: The current watershed planning units, which are working on watershed plans all over the state, are finding it difficult to address what to do about future water needs because of all the uncertainties about how much is actually already spoken for. The Watershed Planning Act, which was passed initially in '97, and then amended a year or two later, is another means by which watersheds can be planned for. Basically, it calls for the establishment of local groups who, unlike advisory groups, actually develop the plan. State agencies are supposed to be represented on those groups, and Ecology is almost always a member, but they're heavily locally oriented groups, if you will, and they're struggling with the same thing that we would struggle with if we were doing the plan. The fact is that a lot of uncertainties out there are represented by unadjudicated water right claims, but how many of those are actually good, and how many are bogus, and how much water do they actually account for in terms of being consumed in the basin, is difficult to determine.

ER: I wanted to ask you whether or not the objectives of watershed plans have evolved over time or remained steady, but I can tell from your previous responses that the process has changed.

KS: Definitely.

ER: So, I now wonder about the objectives.

KS: The objectives have really not changed all that much. Basically, we try to assess the existing demand on the resource to estimate how much water is available and then divide up that remaining pie among the potential water uses and water users, including in-stream flows as well as the projected off-stream water needs from the watershed. The objective has been remarkably stable over time. Some things have been added over time such as, under the Watershed Planning Act, watershed-planning units can recommend whether or not they think an adjudication would be helpful for the basin. They can also request the establishment of a "water master," a state employee who is assigned to regulate the water rights in a watershed whenever there is a shortage of water. The request for a water master occurs after the plan has been developed in order to manage the water rights that exist within the basin and make sure that they're being managed according to the priorities under which they were established under the water code. So, there have been a few things added over time, and certainly nuances have been added and changed, but over my career the objective has been remarkably consistent.

ER: It sounds to me that the prior legislation gave the department more of a driver's role.

KS: It did.

ER: Now it sounds like it has been watered down, so to speak, to becoming a local issue, and the state is more or less an advisor.

KS: I would certainly agree that the local interest is very strongly represented under the '97 Watershed Planning Act. The statewide interest is preserved, primarily, by the involvement of groups within those watershed-planning units that have a statewide focus, but also by the state agencies that are participating, in particular the Department of Fish and Wildlife and the Department of Ecology. Both have been quite active within those groups. It was a concern of mine, along the lines of what you just suggested, that this process might leave some groups disenfranchised. For instance, if one were developing a watershed plan in the Okanogan Basin in Central Northern Washington, the Okanogan Basin supports salmon, and those salmon are fished upon by ocean fishers, lower Columbia River fishers and tribal fisheries—all up and down the river system. Yet, if those folks don't reside in the Okanogan Basin, how can their interests be represented? Representing those interests is really left to the state agencies, for the most part, because these processes do not provide for the inclusion of non-basin stakeholders.

ER: One of the past actions that has impacted salmon is dams—dams for hydropower, dams for flood control, dams for irrigation. And there are hundreds of them throughout the state. How does the salmon recovery effort deal with dams?

KS: Yes, there is quite a legacy of dams in the state of Washington. There are probably close to a thousand dams, when you take into account the federal dams, which tend to be large ones, some large utility dams, and then many smaller impoundments for various purposes, especially small dams for stock use. Dams can represent a major impediment to salmon by blocking passage. This includes the rather large dams in the state like the Grand Coulee Dam, which blocks passage to about a third of the Columbia Basin. Dams over in Idaho blocked access to parts of the Snake River Basin, and then in places like the Yakima Basin, dams that went in early in the century blocked passage of fish into areas that they had previously used for spawning production. While not all dams block fish, many did. Some of those, like dams in the Yakima Basin, are still being considered for possible fish laddering to allow access of fish above them. But a lot of habitat—natural habitat for salmon and steelhead—was sacrificed with the development of dams in the first half of the 20th Century. How does the salmon recovery effort deal with dams? We have limited tools. When there's a listing of a fish species as endangered or threatened, the federal operating agency that owns and operates the dam has to begin to plan for recovery, as well as to meet certain requirements, in terms of minimizing the take of those fish. "Take" meaning the killing of the fish or more indirectly negatively affecting their habitat.

The state has some authority, certainly over dams, that we have permitted over the years and we've worked, with Congress for example, to secure fish passage dollars for use throughout the basin. The Yakima Basin is a good example of an area where many of the diversion dams, which had previously impeded fish passage, now have both ladders and screens to protect salmon. Certainly in terms of the development of future dams, dams that would affect waters that support salmon and steelhead are strongly discouraged from going forward. Very few are actually proposed any more because of the obvious problems that would be in receiving permits for those. We also work, on an ongoing basis, with the Federal Energy Regulatory Commission (FERC), which licenses federally licensed hydropower dams that are non-federally owned. FERC has some very powerful authorities and responsibilities under the Endangered Species Act, the Fish and Wildlife Coordination Act and the Federal Power Act to assure that those dams are not further damaging fisheries. They can actually put a condition on an existing dam that restricts operations, whereas,

when we issue a water right, it's pretty much for life. So, we have limited authority to go back and correct a problem that might have resulted from a water right being issued for a dam, whereas, if it is under federal licensing authority of FERC, there's the ability for FERC to go back and reopen the license and put in new license conditions. So we work quite a lot with them and the Department of Fish and Wildlife. There are some great opportunities there because many of the existing hydropower dams are in the process of, or soon to come up for, re-licensing.

ER: Well, I'm aware that dams, like any structures, get old, and they need to replace them sometimes, or shoring up. I wonder how often the foot load, or the structural problems lead to discussions about dismembering?

KS: There are several dams in the state of Washington that have been discussed in terms of removal. The largest ones are the Glines Canyon and Elwha Dams on the Elwha River. Those have now been acquired by the National Park Service because they are basically within an in-held area of the Olympic National Park, and those dams are being planned for removal. Dealing with sediment build-up behind the Glines Canyon, the upper one, is certainly a very large issue because the Elwha River is a glacial stream and has deposited many cubic yards of sediment behind that dam. That's one of the major issues in dam removal. If you have a huge sediment build-up, how do you deal with that over time as you remove that structure? The river is going to cut back down through that sediment and move it. Generally though, in this state, compared to the Southwest, sedimentation of dams has not been nearly as big an issue. The dams on the Colorado River, for example, have a lot of sediment issues because the Colorado carries so much sediment. Most of our rivers don't carry nearly the amount of sediment, but over time, over the long-term, all dams will eventually silt up. And in the case of something as large as Grand Coulee Dam on the Columbia River, it may take thousands of years, but nevertheless, they all are heading in that direction, sooner or later.

Another dam that's proposed to be removed in the state is the dam on the White Salmon River in south-central Washington, owned by PacifiCorp. The name of that damn escapes me at the moment, but it is moving towards being removed. Basically, it was determined by PacifiCorp that it would not be cost effective to rebuild the dam, or particularly to fit it with fish passage. So they elected to remove it rather than try to fix it so it's more fish friendly. Certainly across the country, but particularly in the Northeast, there's a lot of dam removal going on. Old mill pond dams are being removed to open up areas for fish, as part of fish recovery programs, and I think we'll see more of it. Politically, it can be a pretty hot issue. You're probably aware of the proposals, from certain circles at least, to consider removal of the four main-stem Snake River dams in Washington to help the fish recover on the Snake. The Bush Administration has decided that's not a viable alternative, at least for now, and have set that aside, but it could come back as an option if the fish fail to recover in that area. Those are the ones that I'm aware of, but I think we will see additional dams proposed for removal. In fact, dams can become unsafe over time. Many dams that went in early, during the dam-building era, went in with poor engineering and can be a threat to safety. The Water Resources Program has the Dam Safety Program that regulates the safety of dams and requires remediation of unsafe conditions of dams. Sometimes those might result in the dam being cheaper to remove than to fix, especially if it's not serving any particular purpose at the time.

ER: When people consider is this watershed planning, whether it's to remove dams, what is the major consideration? I mean, it sounds as if removing these dams could cause more than just the safety of the fish issues because there might be a lot of agricultural life on the stream. They don't take it from the reservoirs; so how is that all balanced?

KS: Well, we haven't seen any watershed plans come through yet that we're recommending removal of the new dams. In fact, I think we're more likely to see watershed groups recommend the construction of additional storage rather than removal of storage facilities, so I'm not anticipating that we're going to see those groups request removal.

ER: I'd to ask you about some issues related to the Boldt Decision. Boldt I, as I understand it, confirms tribal rights to half the salmon and I suppose the other fish and shellfish, and Boldt II edges into habitat issues.

KS: More than edges into it. It bowls its way into habitat issues. That's directly what it is about.

ER: Well, how likely is it that, in the future, the state or someone will be required to restore massive areas of habitat?

KS: Well, Phase II has an interesting history. Immediately after Phase I, Judge Boldt moved into Phase II, and he made a decision on Phase II that was appealed to the Ninth Circuit. That three-judge panel decision was appealed to the entire Ninth Circuit Court of Appeals, and it made yet a third different decision. The first two courts found there was an obligation by the state to protect fish habitat but espoused different standards. So, the thing bounced around the courts for quite some time. At that time, in the early '80s, the final decision of the Ninth Circuit Court was that this issue was not ripe to be litigated because basically the tribe's complaint that had been brought in the first place was of a generic nature. It wasn't documenting a specific set of facts where it alleged the state had damaged the fisheries. Rather, it was a more generic, general complaint. The Ninth Circuit was able to dodge having to make a decision on the issue by saying that, if you want this litigated, you've got to bring specific facts to the trial court, and then they'll take it up and maybe it'll come back up here again, but at this time it's just not ripe.

The implications of the lower court decisions, and the decision of the three-judge panel of the Ninth Circuit itself, made it pretty clear that the courts were likely to find that indeed there is an environmental obligation. That's what has been called an "environmental servitude" by the state and local governments to protect salmon and steelhead, which were the subject of Boldt I, the allocation of fish, including 50 percent of the harvestable fish to the tribes. That was certainly the way it was leaning until it got to the full Ninth Circuit panel, where it was more of an argument of what would be the standard that the state would have to meet. The lower courts kept espousing different standards and the next higher court would change the standard. Ultimately the Ninth Circuit said, well, we're not going to decide on a standard because this isn't ripe for making a decision. So, it was an interesting period, and it certainly had a lot of influence on how the state was trying to do business in setting in-stream flows, et cetera. Since then, the tribes have appeared to be pretty reluctant to bring issues before the court. We had the understanding, though, that the tribes were documenting, very heavily, what they viewed as transgressions against the environment that had been permitted by the state, or actually carried out by the state. For example, by the Department of Transportation in constructing projects that damaged

fish-bearing streams or blocked fish passage. Also, the state might have been responsible for permitting certain activities that could include water diversion, which impacted the fish and therefore the harvestable amounts that the tribes could enjoy. Later, some other court decisions had come along that, I believe, pretty much affirmed where the courts were going on this, that is, the affirmation of the tribal rights to fish flows. That included a decision in 1977, I guess it would have been fairly early on, the so-called "Quakenbush Decision," where the Yakama Tribe went to the federal court in Spokane and asked for relief because of the drought situation in the Yakima Basin had resulted in the drying up of salmon nests in the upper Yakima River. The court granted that relief and required the Bureau of Reclamation to maintain water flows over those salmon eggs and nests. Over time, that has become part of the operations of the Yakima Basin. In addition, the Yakima Adjudication in 1993, affirmed that the Yakama Tribe has rights to in-stream flows sufficient to protect the existing fishery in the basin. Some other court decisions around the West, particularly in Montana and Oregon, have gone the same way. So, it appears that, ultimately, if the higher courts are faced with this issue again, the specific facts, I am presuming and many others are presuming, that the tribes' rights to flows to protect salmon will be upheld.

The Endangered Species Act is really a separate matter entirely from tribal treaty rights, as the state and local governments are actually doing more than they had been previously in this regard with a culvert case that's going on right now. The tribes have filed, in court, against the state because of literally thousands of culverts across the state on state highways and state roads that fail to pass fish.

ER: What about the Duwamish Basin in King County? That whole area is so polluted and so interrupted by all kinds of human activity and development. What if the tribes were to challenge the Duwamish?

KS: If that were to come to pass, there could be some pretty major changes required in the way people manage water, the shoreline, and the riparian zone. There could be requirements to restore habitats that have been destroyed. It would take, in my opinion, quite a long time for the courts to come to that, but I think that they eventually may. That's why it's really important for the state and local governments to take salmon seriously. The Endangered Species Act is really a separate matter entirely from tribal treaty rights, as the state and local governments are actually doing more than they had been previously in this regard with a culvert case that's going on right now. The tribes have filed, in court, against the state because of literally thousands of culverts across the state on state highways and state roads that fail to pass fish. Actually, it was documented in the report done by the state itself. The tribes are saying that the state itself has acknowledged the problems created by these culverts but does not have a sufficient program to solve this problem anytime soon, therefore, they're asking the court to order the state to do more to get these culverts fixed. I believe the report projected it would take over 100 years, at the current funding rate, to fix all the bad culverts. This isn't even addressing the non-state culverts. The federal government owns lots of culverts too, up on Forest Service land and on other federal reservations, and, of course, local governments have many culverts as well, but this suit is just addressing state-owned culverts.

So, everybody's watching that case very carefully to see where it goes because it is, in fact, what the Ninth Circuit was asking for, or suggesting that tribes try to do, and that is to bring specific sets of facts of damages before the trial courts and go from there. They want to make us do this line of litigation, and so they are. Water quantity could be down the list somewhere. At some point in the future, if the culvert case is successful for the tribes, we're pretty sure that they will pursue both water-quality and water-quantity issues at some point in the future along the same lines.

ER: How much does the salmon recovery effort rely on legal action and enforcement to carry out its mission? You talked about the Indians using their legal techniques, and what about the state using its legal might?

KS: I would say, also, that private groups, especially environmental groups, have also been very active, especially on salmon-related issues. They've gone to the federal courts time and time again to get relief and have been successful sometimes and not successful others, but the federal court in Portland, Oregon, with regard to the Columbia Basin, Columbia River, has been quite active in this area. As far as the state taking legal action, in the water resources area, we have some pretty severe limitations on what we can do in terms of compliance to help fish. First of all, if we've issued a water right, water rights are perpetual as long as people who received the water right continue to use it. It goes with the land so they can be inherited, they can be passed along through sale, but the water rights are perpetual as long as they continue to be used. We have pretty limited authority on what we can do with regard to those. We can make sure, however, that they're not exceeding the amounts that they were given. We can make sure that the diversions are screened because that's almost always a requirement. A diversion can be screened to keep fish out of it. We can require that the water amounts be measured and recorded. So we do have some things that we can do. In terms of issuing new rights, we can put conditions on new water rights that are more restrictive, with regard to protection of fish than they might have historically. Of course, we can set in-stream flows and make sure that those are not diminished, and we do that through legal action if we have to, through enforcement, and we can bring dollars to bear as I've indicated before, to buy back water rights on critical salmon streams to try to get better water conditions back to salmon. That's not so much a legal matter, although, when we require such rights, they're called "trust water rights," and we can legally enforce to protect those in accordance with our priority date. So, we have some tools and I wouldn't say our hands are tied behind our back. At the same time, we don't have unlimited authority, as you might imagine.

ER: Even though your job has really been more related to watershed planning, how long do you think the salmon recovery effort is going to save the salmon, and how will we, the general public, know when it is done?

KS: I don't think we'll ever be done, as long as people occupy this part of the world, especially if they continue to occupy it in greater and greater numbers because salmon really don't exist very well wherever humans exist. That's just the truth of the matter. The more people you have, the more people you have out on the rivers. They're taking water out of the rivers or logging on the riverside, or wanting to build houses on the side of the rivers. Good salmon habitat is not compatible with having human populations at the rate we have now, and certainly in the future. I think the bigger question is whether we will be able to recover salmon, and I'm not convinced we will, simply because of that reason. We have six

million-plus people in the state of Washington now, and there's no indication it's going to stop growing. Economic forces are driving us to have more people living here, not fewer. Growth management has not been what we can call "a rousing success" when it comes to protecting or recovering salmon. There was a recent series of articles on Pierce County growth management that indicate it has not been successful in directing growth to existing urban areas. The sprawl is continuing apace, and sprawl basically means that more people are impacting more salmon habitat. I'm a bit of a pessimist that salmon will really be recovered. In the more global picture, global warming is not good for salmon in this region because it means warmer water, warmer ocean temperatures. Those are conditions not conducive to salmon continuing to exist in this region. They may have to shift north to areas that will still be cooler, but I guess I would have to say I'm not optimistic. We can do things in the near-term that will preserve some salmon, perhaps limited runs will remain. It's just very hard to be optimistic the way things are going.

"First Fish" Soul Salmon, sculpture by Loren White and Lane Quine. Photo by Frank Ross. Copyright 1999-2002, Tahmanawis org.

ER: What structural or institutional changes would have to be made in order to have a more optimistic future?

KS: In my opinion, you'd have to control population growth in the regions where salmon exist because human habitation intrudes on their habitats. It may not be possible to preserve many wild salmon, although the species may be continued, perhaps only in fish hatcheries. For naturally produced salmon, they've got to have clean water, cold water, as well as being in areas that humans, and their dogs, and their livestock, and everything else do not access.

ER: That's a pretty heavy conclusion.

KS: It's not only me saying that. It's also in the literature. Even people who like salmon affect their ability to survive. Just being on the river and bothering them when they're trying to find a place to spawn, any activity on rivers, has been shown to affect the ability of salmon to spawn successfully. So, even the people who love salmon and like to fish for them, or like to observe them, probably aren't helping them a whole lot by being in the vicinity when they're trying to do their thing.

ER: People are loving them to death.

KS: Much like the whales in the San Juans and Puget Sound, I'm afraid.

The Problem of Pollutants in the Watershed

An interview with Dave Peeler
October 6, 2004


Peeler

Position held at time of interview:

Program Manager for Water Quality, Washington State Department of Ecology, since 2004

(Employed by Ecology since 1975)

Education:

- Post-graduate study at The Evergreen State College, Masters of Environmental Science Program
- Bachelor of Science in Zoology and Bachelor of Arts in Literature, University of Washington, 1974

Emily Ray: I imagine that as Manager of Ecology's Water Quality Program, your responsibilities include many activities related to salmon recovery, but I'm curious about grants and loans, which I understand is one of the things you oversee. How do the grants and loans relate to the salmon recovery effort?

Dave Peeler: Well, you have to think about what the grants and loans are trying to accomplish. In this circumstance, we're talking about grants and loans to improve water quality in the streams. Currently, we offer grants and loans that total up to $250 million each biennium. We give out grants to local governments, primarily, to undertake activities to improve, say, riparian conditions, such as streamside vegetation and channel morphology, and to put some kind of storm water controls in place to keep polluted water out of the stream and also to keep things like pesticides and sediments and other contaminates out of the stream and on the farmland or the forestland, or wherever they originated. We give some grants to local governments for sewage treatment and control, but, primarily, for these activities, we give out loans. When you think about sewage treatment plants and the tremendous amount of pollution that they can put into rivers and into Puget Sound, you can understand what a great effect this can have on the health of the water for fish. So, the idea is, we're going to lessen those pollutants by helping local government and some others with grants and loans for the appropriate treatment.

ER: Now I'm going to ask a politically sensitive question, and that has to do with private septic systems, on-site systems that are everywhere. Where is the monitoring? It seems to me that if salmon and shellfish are going to recover, somebody's got to say, stop.

DP: That is a good question, Emily. Actually we're holding initial discussions on how we should attack that problem because, the way the current laws are set up, local government makes the call on individual on-site systems under statewide rules that are adopted by the state Board of Health and the Department of Health. We have been working with the Department of Health and Board of Health on some proposals to strengthen those rules so

they'll be more protective of the environment, and, hopefully, if those get adopted in the next few months, there will be good things in the future. We have hundreds of thousands of on-site systems out there right now that were built under the old rules, or not built under rules at all. So, part of what we're wrestling with is, how do we get some structure into play which will allow us to effectively fix those systems that are either failing or polluting water bodies, such as the current problem with Hood Canal in Puget Sound. I don't have a good answer for you yet. I mean, those issues are still under discussion. We're putting more teeth into the special protection districts, like shellfish protection districts, and we're putting more beef into the authority that local and state governments have to require that failing systems get fixed. But part of the problem with Hood Canal, in particular, is just the sheer number of these on-site systems. It's not necessarily that they're failing; it's just that there are a lot of them out there, and they don't necessarily treat or remove nutrients. They treat bacteria and other kinds of things, but not necessarily nutrients, which means you're going to have seepage into the water body.

I think the resolution to this problem is going to involve a combination of actions. Maybe there needs to be some centralized sewage treatment plants in some areas to collect from those individual systems. Maybe there needs to be better individual systems put in with treatment in some places. It's going to be a combination of things. So, the answer is, we don't have a plan, at least not right now.

ER: What are the differences in nutrients and bacteria that come out of the system?

DP: Individual septic systems in the ground, or on-site systems, as we refer to them, are designed to treat human bacteria from our intestines, guts, by cooking them. Then that goes through a drain system—a drainage field in the ground. The idea is that plants will uptake the water and some of the nutrients in the waste. You will not see bacteria escaping from the local land into nearby streams or water bodies, like Puget Sound, if these systems are functioning correctly. What our Source Identification Teams have done in the past is go around the shoreline areas of, let's say, Puget Sound. Wherever they see seeps of water coming off the banks or the bluffs, they'll test it to see if there are any bacteria in there. If there are, they'll look and see if there is a septic system on top of that bank or bluff, and then they'll try a dye test in order to follow the path of the seepage to see if it's contributing. When they do those kinds of tests around Puget Sound, they find there's a pretty high failure rate in certain kinds of soil conditions. So, bacteria is an indicator of pathogens in the water. That's not necessarily something that would be bad for fish. Certainly it's a human health concern—where we can get sick from either playing in, or swimming in, or otherwise being exposed to the water, but it can also carry pathogens that could be bad for fish. So, septic systems are really designed to keep the bacteria out of water, but they aren't really designed to treat or diminish nutrients that might be in the waste that passes through households. So, these systems don't really take out nitrates, for example, that are in the waste stream. Nitrates are going to go right through the septic system, into the drain fields, and then if they're not taken up by plants—grasses and trees that grow over the drain fields—those nitrates will eventually work their way through groundwater into nearby water bodies: rivers, streams, lakes, Puget Sound. Once there, nitrates can build up high loads of nutrients that cause plant growth and algae blooms in the lakes in Puget Sound, and those can be really bad for aquatic life like fish, for a number of reasons.

ER: How do algae blooms impact aquatic life, salmon in particular?

DP: One of the problems with nutrients from septic systems and other sources reaching high levels in our waters is that they contribute to explosive growths of algae and aquatic plants. When these plants die off, they sink to the bottom, and as they decay, dissolved oxygen in the water can be reduced to very low levels. If the oxygen levels get low enough, aquatic animals, including octopus, crabs, and fish, can be killed in great numbers. These low oxygen levels will not necessarily affect air-breathing mammals, such as seals and whales, since they will surface to breathe in oxygen. But the animals they prey on, and that we fish for, can be greatly affected.

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ER: When I first came to the agency, I remember Water Quality folks saying, dilution is the solution to pollution. I'm not a scientist, but I remember that didn't sound right to me, and it turns out not to be right.

DP: You're right. One of the very early experiences I had during my early years with the agency occurred when I working for the Eastern Regional Office in Spokane in the early 1980s. We had worked with the City of Spokane to put in an upgraded sewage treatment plant. In fact, it's the plant that is still there today, although it's been modified somewhat since then. So, they had an old primary treatment sewage treatment plant that was not removing as high a percentage of pollutants as we would like to see from the Spokane River. Their effluent goes directly into the Spokane River, just downstream of the city. Downstream from the treatment plant is Long Lake, which was created by a dam. It's surrounded by homeowners who live on that lake and who want to have high-quality waters.

About that time, as we were working with the city to upgrade the treatment plant, they said they needed to do what was called a "bypass" of only partially treated sewage during some plumbing changes. It was going to be, I think, a two-day operation, and they had requested approval from us to do the bypass, essentially, and not fully treat the waste before it went into the river. Of course, it took years for the upgrade to play out, so in the meantime, the city finished the bypass. It took them longer than they thought, and they bypassed more water and more waste than they thought they would that particular spring. Then that summer of the same year there was, for the very first time, a toxic algae bloom in Long Lake—huge algae blooms, mats of algae, floating in Long Lake. So there was a lot of blame placed on the city and Ecology for allowing this extra waste to get into the river, and thereby pollute Long Lake. Because we had allowed that, we were sued by the Homeowners' Association downstream. They won, and we had to pay damages because we had allowed it to happen.

And now, years later, as we're doing a lot more studies on the Spokane River, of course, there has been more growth out there. There are more discharges to the river, and we're looking at nutrients and dissolved oxygen in the river and in Long Lake. In our opinion, the amount of nutrients entering the river from these point source discharges, including the city

and the county and some other sources out there, needs to be decreased by about 90 percent in order to meet water-quality standards downstream and to protect the fish life there. If they did that, they would be able to stop what has now become a recurring issue of these algae blooms and toxicity effects down there. When we first started in the '70s, those were very unusual. Now they have become more common.

To get back to your questions, when we made that decision, as an agency, back in the early '80s, the City of Spokane was the only municipal discharger to the river. There were some industrial discharges out in the Spokane Valley that also contributed nutrients, and some of those are still there today, but now, 25 years later, the population has grown tremendously there. There are, I think, three treatment plants that discharge to the river now, and there are still three or four industrial dischargers. So, you might say that when we had less discharge and therefore less nutrients that we were worried about getting in there, there was enough dilution in the river, to a certain extent, to not have detrimental effects on the water quality and on fish and wildlife, with the exception of the bypass situation. But over time, the amount of pollution entering the river has grown tremendously with that increase in population growth over there, and now there's not enough dilution. They're way under the amount of water necessary to dilute that waste effectively. Part of what our work with our Total Maximum Daily Load (TMDL) cleanup plans is to figure out, OK, what amount can be safely diluted, and how much more treatment are they going to have to add to get down to that amount? That's the 90 percent reduction figure I told you before. They're discharging maybe 10 times what would be a safe level out there now.

ER: What is TMDL?

DP: Total Maximum Daily Load, or TMDL, is a requirement under the Federal Clean Water Act for water bodies that are not meeting the state's water-quality standards, and they've been a requirement of the Clean Water Act since 1977, but most states, including Washington, have not been doing them as required until a slew of citizen lawsuits were filed across the country, including in our state, back in the early '90s. Prior to the lawsuits, we had been requiring dischargers to meet technology-based requirements, such as secondary sewage treatment for cities. That's when we started to do the TMDLs, which are basically watershed-based plans to control water discharges of pollution to rivers and other water bodies in order to reduce them down to a level that meets water-quality standards in that specific watershed.

ER: I'd like to know a little bit more about the history of watershed planning. What else can you tell me about it?

DP: Each one of us probably has our own perspective because we worked on different parts, but in my experience, starting in the regional office in 1975, the watershed planning we were doing then was pretty narrow in nature. I worked a lot on groundwater supply issues. There are areas out in Eastern Washington that are over-allocated on the groundwater side, which have pretty badly declining water levels where wells continually have to be drilled deeper. Springs have dried up and streams have dried up because of declining water levels. So, I worked on that issue for several years. That's a form of watershed planning, which involved establishing what was an acceptable rate of decline of the aquifer that was economical for the people out there who were using that water. Although we tried to regulate the amount of water withdrawn from wells out there, the

water levels were still declining a lot, and we were scratching our heads about what to do, yet we still had applications for far more water to be withdrawn that we didn't want to issue.

Along came the WPPSS (Washington Public Power Supply System) debacle in the late '70s / early '80s, when several nuclear power plants were under construction and power prices started to spike. Of course, all the people with the irrigation wells out there had to pump water from deep down in the ground, 500-600 feet, and all of a sudden when the power prices started to climb, that was a much more effective deterrent to pumping excess groundwater than anything we could have done. In other words, market forces really acted much more swiftly and much more severely than any regulatory approach that we might have taken in order to reduce withdrawals out there. So, there's a lesson there. In some ways, we're not as powerful as we might think. If we could work with market forces as incentives or disincentives, we'd probably be more successful. The other area we worked on was stream flow, trying to set minimum flows in rivers, and then issue water rights down to that minimum flow. We did that for several years, and then there were lawsuits that were brought against the agency by people who thought that those minimum flows were either too high or too low. So, that process got put on hold for 10 years, essentially, until the Watershed Management Act was passed, House Bill 2514 in 1997, now codified as Chapter 90.82 RCW. A whole new kind of watershed planning process was put into place to deal, supposedly, with water supply, minimum in-stream flows, water quality and habitat. The agency and the state have poured millions of dollars into local planning processes that are meant to address those issues. Almost none of the local planning processes have dealt with water quality and habitat. They've been hard enough pressed to deal with water supply and stream-flow issues. We're starting to get those plans in now; so it remains to be seen what the ultimate result of that effort will be.

ER: How do you make sure something you've put in place becomes effective? How do you keep it on course?

DP: The answer to your question is the TMDLs that we're doing now as required of us under the Federal Clean Water Act. The TMDLs require us to look at all the sources of pollutants in a watershed and then figure out what reductions need to be made, and by whom, in order to meet water-quality standards. What's interesting is that we are required to do those TMDL plans, and we are required to make them happen, but we don't necessarily have the authority to make them happen. That is especially so if we're talking about nonpoint sources of pollution. So, we get into the similar place that a lot of people have been in before, which is, we might have a really good plan, and we may have buy-in from local governments, or other groups, associations—dischargers and the like—but we might not have direct authority to make it happen. So, we use a combination of permit requirements under NPDES (National Pollution Discharge Elimination System) Permits, and, as I said, we use grants and loans to try to give incentives to people to do the right thing to carry out the elements of the plan. We try to get folks educated with our educational elements in the plan, and we give technical assistance so they'll understand how to do things, including if they need to apply to some other agency for grants, like the Public Works Trust Fund, local conservation districts, Department of Health, or whomever, to get money to carry out a certain aspect. We're also trying to organize ourselves to be more effective in getting U.S. Department of Agriculture funds under the Farm Bill for agricultural and forestry lands, which are better targeted on conserving the resources of

those lands for water-quality purposes, as opposed to crop-growing purposes, by keeping pesticides and pollutants out of the water.

So the issues, in my 25 years working on watershed planning, include working with different watershed planning processes, and I've mentioned a couple of the issues already. One is, who's really got the authority to make things happen, and what happens if they don't make it happen? Usually, that's not very clear. Does anybody have the resources to actually implement the plans that are produced? The answer is, not nearly enough. It's hard for local governments and state governments to come up with sufficient resources. Another issue might be, is anybody tracking and monitoring the implementation of these plans? Is there some kind of an adaptive management or report that we can come back to and ask, is this plan functioning as we intended or not, and, if not, why not? Those are all my lessons learned from all these years. I think most people recognize that those are now the necessary elements to any watershed plan. Now, having said that, whether or not we can actually make them happen is still a big question.

To begin with, people are naturally averse to acknowledging there's a problem if they think it might hit them in the pocketbook, whether the problem is real or not can be totally beside the point.

ER: Sounds like part of the key to making things happen is in enabling legislation.

DP: That's one key, as opposed to the Department of Ecology, or an environmental group, or some other group, saying, there's a problem here that somebody needs to pay to fix and somebody else needs to change how they're doing things. Another key is in getting a fairly well-developed sense of community between the local folks—the local government and state government, usually. That's a hard one to get over. To begin with, people are naturally averse to acknowledging there's a problem if they think it might hit them in the pocketbook, whether the problem is real or not can be totally beside the point. But certainly funding and legislation, and having appropriate authority, is very significant.

ER: Another question on my mind has to do with the fact that this is a multi-jurisdictional effort to carry out salmon recovery as it operates at the federal, state and local and tribal levels. I talked to Dick Wallace, and I know that he spends an enormous amount of his time going to meetings with all these different coordinating groups to try to keep all this on track. The program is operating with good intentions and engaging with the public, yet he did express concern that this may take 50 years and already legislators are asking, what's happening and what's the progress? They're wondering how the money is being spent. How do you get there?

DP: I don't know a short, pithy answer to that question. Part of it is that we, as an agency, have tried to split up the salmon recovery issue, if you will, into different kinds of buckets, for want of a better term. We are trying to work very hard on the water resources side of things with the Watershed Planning Act and the backup authority that we received as an agency. That's Dick Wallace's area. So, planning for and establishing minimum in-stream flows that will be protected for salmon and other fish, and then planning to get that water in the stream if it's not there already—that's a good start. But it will take years to get there.

Then there's the water quality side, which is where the TMDLs and some other programs come into play. We just started to put significant resources into the TMDL program five years ago. We have a 15-year schedule to complete TMDLs off of our initial priority list; so, we're about one third of the way through that work plan, and it's a struggle. It's a really hard thing to do. But, again, we've got these two buckets. The third bucket is not really ours as an agency. It encompasses the whole area of the biology of the salmon, such as the habitat, making sure that we do have some input into the habitat issues because of riparian issues such as stream-side vegetation that can affect temperature and sediment quality, and some in-stream issues that we work on—the nature of harvest, habitat, hatcheries, that sort of thing. There's a whole other universe of agencies and tribes out there dealing with that aspect. So, to get back to your question, I don't necessarily think the state has the best structure we could have in place to make things happen, track them and to make sure they're coordinated across those three areas.

There are probably some others I'm forgetting right now, but we do have the Salmon Recovery Funding Board, with Dick Wallace as our member, which our agency has its hands on. There are funds that are disbursed by that agency to support different activities and facilities that contribute to salmon recovery. Of course, we have our funds that go for water-quality, pollutant-reduction facilities and activities, and there are funds that go to Watershed Management Act planning. So we have channels to get things funded, at least. What we don't have yet is a bigger framework in place that coordinates all of these activities in each watershed, such as comprehensive watershed plans that actually have a set of specifics that we can report back on. For example, yes, these 10 things needed to happen, and how many of them have happened or when will they happen? Are we set up to make them happen—not we, Ecology, necessarily, but, we, the greater community? We don't have that framework in place yet.

ER: But I do remember back, I don't know how many years ago, when people at Ecology were dreaming up ways and working with the Office of Financial Management to track success indicators. Are those tracking mechanisms used for these particular activities?

DP: There are salmon recovery performance indicators—those do exist—and our agency does have some indicators that we track against and report upon on a regular basis. I would say, even bigger than that, Emily, is that all the state agencies are being put under the gun, more and more, to have performance measures. If the state Legislature is going to give us X-millions of dollars to carry on an activity, then we'll be reporting on what we accomplished. Was it effective? Did we reduce, in our case, the level of pollution? Did we increase the health of salmon? Those are harder things to monitor and report upon, but we're being pushed, and I think rightly so, toward that kind of reporting. And that push is coming from both the state and federal level. A lot of the federal dollars we get now—through EPA and through the Department of Interior, including NOAA (National Oceanic and Atmospheric Administration) Fisheries—more and more require post-project monitoring, project assessments and reporting on effectiveness. I think that's a good thing. It's a hard thing to do because a lot of times you may not see results of a particular project for several years, but if you're spending the money up front to do it, sometimes it's hard to make that connection a few years later. As we work on understanding the right ways to report on progress, we're learning a lot. Part of the process is to determine what information you want to collect so you can make a report. It's a struggle, but I think we're making a lot of progress.

ER: If in-stream flow is critical to salmon recovery, what strategy will be followed when the stream's water is fully appropriated and the flow is not sufficient for fish?

DP: Well, what water rights and adjudications do, in general, is just confirm whether someone has a water right or not. Once that has been established, then the question is, how much it's for—how many gallons-per-minute, cubic-feet-per-second or acre-feet-per-year. How much can they divert from the Yakima River, in the case of the Acquavella Adjudication, and then how do they stand in priority relative to somebody else who has a water right? Are they a junior or senior? If there's not enough water in the river, who gets cut off first? It doesn't really put more water back into the river. In the case of the Yakima River Acquavella Adjudication, which is still in process, some of the water rights are subject to in-stream flows, but not all of them because they're so old most of them pre-date any agency setting minimum flows. Like I said, it's probably not going to be that helpful for getting water back in the river, but what it might do, while waiting for us to get water back into the rivers, is basically quantify water rights, allowing us to buy back some water rights, or to help install conservation practices on farms so they use less water. When you're talking Acquavella, you're talking mostly irrigation and farms, although the City of Yakima is one of the water right holders there. Anyway, the two considerations are: One, can we buy some water rights back so we can leave that water in the stream? And, two, can we put in better practices—like maybe drip irrigation systems instead of trenches or irrigation furrows—on farms so that they will use less water, thereby they don't have to pump as much out? Those are really the main efforts that we can pursue.

ER: I thought that the Boldt Decision of 1975, the federal court decision allowing tribes 50 percent of the fish, would require retrofitting of some of these requirements so that there would be enough water for fish, and that if the usual and accustomed places had been tapped out of water, that something would have to be done.

DP: It may eventually work its way to that point. I'm not as close to the Boldt Decision as someone like Dick Wallace, who's working on some of those habitat-related issues, but the Boldt Decision was split into two parts. Boldt I was about dividing the fish so that the tribes and the non-tribal fishermen each got 50 percent. Of course, that played out over years as people went to court and back again and finally the state and the tribes reached sort of a happy place, where parties could say, OK, we can work together under these conditions. Boldt II, which has started to wind its way through the courts, has already had a couple of ramifications. One was to look at shellfish resources to see whether or not shellfish should have the same division—50-50 between tribes and non-tribal peoples. The other part of that, which is related to habitats, hasn't really been litigated yet. That is, if the tribes have a right to 50 percent of the fish, do they also have a right to have good quality habitat so the fish can actually be there and so that there are actually runs of salmon that they can take 50 percent of? That part hasn't really been litigated yet, and there have been pretty lengthy negotiations over one aspect of that issue.

Tribes have raised that issue in court, but it hasn't yet been litigated. One part of that issue they have been negotiating, and recently failed to reach an agreement on, has to do with culverts. The issue is that culverts for road crossings over streams frequently are not, for whatever reason, allowing fish passage through. Sometimes a culvert may allow water through, but for some reason it blocks the fish, either upstream or downstream, and the tribes want those fixed. We know that there are a lot of culverts that are owned by the

state—either by the Highway Department or county governments, county roads—that are blocking fish. There are certainly a lot of them on private roads, like in forestlands and ag lands that block fish; so, tribes want them fixed. So, that is an issue that's been raised in a lawsuit that had been put hold while the state attempted to negotiate a settlement on culverts on public roads. A few months ago, those talks collapsed. They just couldn't reach an agreement after a couple of years of trying to negotiate an agreement, so that may get litigated. That's part of the habitat issue, having streams that fish can actually go up and down. If the court was to rule in favor of the tribes, that yes, the tribes do have a right to have good habitat for fish so that they can harvest them, and there's a culvert problem here that we all need to fix, that issue easily could be expanded into stream flow—tribes also have a right for their fish to have a certain amount of stream flow so they can actually live and reproduce. So, all those things could happen if that lawsuit goes ahead, but we don't know that yet.

In the meantime, you see efforts on the part of the state to try and deal with culverts. The Department of Transportation has a program in place to try to replace culverts that are fish blockages. Every year, they are spending quite a bit of money to replace some culverts. County governments, I think, are doing less but some of them have identified fish blockages on county roads and are attempting to deal with those. The Forests and Fish law, which Dick Wallace and I both worked on, looks at water-quality and resource protections on private and Washington state forestlands. It also deals with replacement of culverts and other fish blockages, and an attempt to try to get, over time, fish blockages identified, prioritized and fixed. So, as you can see, the state is trying to make an effort to deal with some of the habitat conditions in which the tribes are interested in order to not go to the legal result, which may or may not be in our favor. Anyway, some tribes, for instance, have asserted a right as fisheries' co-managers, that is, co-managers with the Department of Fish and Wildlife, to determine what the appropriate water-quality standards should be on waterways in our state to protect fish—to have good quality water habitat. We are not in agreement with that position of the tribes, but yet it's a position that is out there, and it hasn't been litigated. In the meantime, we're just trying to work with the tribes and other folks to look at what should be the appropriate standards, if we can agree on those, then we don't have to litigate it. We can just adopt them. I think the Watershed Management Act, where we have these local planning units trying to determine what should be the appropriate stream flows and then what plans can they put into place to get there, is another attempt to try to get at the issue of stream flows without having the Boldt Decision drive us to some result that we may or may not like as a state. So, I'm saying there are a lot of efforts out there to try and get at some of these issues. Boldt II has not really been litigated to its ultimate conclusion, and folks are afraid—whether they're the tribes or the non-tribal people—that a court ruling might not be in their favor, so that brings on more of an effort to reach a working-level agreement.

ER: Well, it's obvious that water quality and water resource issues are married to salmon recovery. It's all a big ball of wax, and it's hard to know when it's all going to be done, but when it is done, how do you know you're done?

DP: From my perspective, Emily, the water-quality perspective, and maybe from the water resources perspective, we'll know we're done by the performance measures we set. In our case, performance measures would be stream flow of a certain water quality in the streams so that you could go out to any river in the state and measure against what the goals were

for that river, how much water and how good of quality, and if we're meeting them. If we were, we would then be able to say, we've been successful. So, of course, we won't be successful everywhere at all times. You have to have some measure of what constitutes success. Maybe 90 percent of the time we're meeting 90 percent of the goals. Maybe that would be considered success? I think with performance measures like that, sufficient water of a high enough water quality to support fish when they need it has got to be the goal for us. Now, that doesn't necessarily mean fish would be there, because you have other factors—hatcheries, harvest, hydropower, ocean conditions. So, you know, we can do the best we can on the habitat side, which is the water quality and the stream flow, but somebody else has to be working on the other three H's. Anyway, that's how I would measure it—have we created habitat that is healthy for fish? Then, can fish actually use it? What kind of returns are we getting? So, it's going to take years to get there, but I think there are measurable ways to know whether or not we're successful because this is important, not just to tribal people, or people who live along a salmon stream. Salmon recovery is an important idea for most of our state's residents. So, we need to have in place some kind of a report card, essentially, on a yearly basis, which states how Washington is doing on salmon recovery. We're not there yet, but I think we're trying to get to the point where, with that kind of report card, people from outside can look at that and ask, Is that good enough? Not good enough? Not fast enough? Too fast? Are we spending sufficient resources to get there? So, that it isn't just a bunch of bureaucrats deciding what's good enough or not good enough, or kind of muddling along. I think you need that outside perspective to look at what we, collectively, are doing for salmon recovery. So, that's needed. Again, you can't measure it unless you have measurable goals. I hate to keep coming back to performance and measurable progress, but I really think that's what it's going to be about.

You have to have some measure of what constitutes success. Maybe 90 percent of the time we're meeting 90 percent of the goals. Maybe that would be considered success? I think with performance measures like that, sufficient water of a high enough water quality to support fish when they need it has got to be the goal for us.

Devising a Plan for the Dungeness and Elwha Rivers

An interview with Cynthia Nelson
June 23, 2005


Nelson

Position held at time of interview:

Watershed Lead for the Elwha-Dungeness Watersheds, Shorelands and Environmental Assistance Program, Washington State Department of Ecology

(Employed by Ecology since 1984)

Education:

- Master of Environmental Studies, The Evergreen State College, 1994
- Bachelor of Science in Forestry, University of Washington, 1975

Maria McLeod: What is your job and your history with the agency as related to salmon recovery?

Cynthia Nelson: My job right now is as watershed lead for the Shorelands and Environmental Assistance Program, implementing the law that was put into place, the Watershed Planning Act, House Bill 2514, codified as RCW 90.82. Actually, I began working on in-stream flow rules in August of 1984 with the Water Resources Program. At that point, I did in-stream flow rules for as long as we had the program in place, and we got into a very controversial time where the program was basically in hiatus for many, many years. During that time, I worked with the tribes and different interest groups, trying to resolve policy issues related to in-stream flows, and, by association, salmon restoration.

MM: In what ways does salmon recovery serve as a driver for the work you do?

CN: A major reason for watershed planning was flow restoration and salmon recovery, and there were some discussions, during the 1998 legislative session, about having a single bill when the Salmon Recovery Act and the Watershed Planning Act were first introduced. For various political reasons, that didn't happen. But, to answer your question, our watershed planning units focused on water supply and restoration and protection of salmon habitat across the watershed. For the Elwha we incorporated a little bit of the federal fisheries recommendations, but we didn't interact with the federal folks much because of the federally-run negotiations related to dam removal and existing water supplies with Port Angeles, Lower Elwha S'Klallam Tribe and the small water systems, and also because in-stream flow-setting will be done after dam removal.

So, we wound up with two of these bills in 1990, and Ecology proceeded along with watershed planning, focusing on water resources. But according to the statute, when your local planning unit says, OK, we're going to organize to do watershed planning, they have to decide, early on, if they're going to go beyond the mandated water quantity element. As part of taking the money, they have to address water rights, water quantity, water needed

for fish, water needed for future domestic use—all this big stuff. Then they can opt to take on in-stream flow setting, water quality issues, and salmon habitat. When they take on salmon habitat, they're supposed to rely on the work that's being done under the state salmon recovery efforts.

MM: And as a way of getting to the issue of salmon recovery, you mentioned in-stream flow planning. What does that entail?

CN: We've had several phases of in-stream flow planning over the years. The way it was being done when I came on board was pretty much a state agency-directed process, although we did consult with tribes, the Department of Fish and Wildlife, the Department of Agriculture and the Energy Office. We have a list of beneficial in-stream uses in the statute that are also considered, but we generally based recommendations on fish habitat needs. But in 1985-86, in-stream flow planning hit the rocks. The biggest issue was how much water gets left in the river for fisheries and future generations, and how much water goes for development. Of course, there's some room for future use in the water rights that we have already issued, but certainly not enough to cover the complete expectation of population growth around Puget Sound. So, in regard to having flows in the river, the issue was: How do we establish a benchmark flow number that would protect in-stream uses if that amount of water were in the stream? Even with flow level adopted by rule, the water may or may not be there, either because senior water rights are diverting it or because of natural hydrologic conditions. With the Endangered Species Act (ESA) listings, addressing habitat concerns for fish has been reinforced as a major focus.

Our approach also had no net loss of fish habitat as a major component. That was very controversial, as normally off-stream water rights did not often include mitigation requirements. The proposal was not accepted when proposed, and we had years of arguing over fish versus off-stream water supplies.

MM: When you say you had to figure out the needs of these various parties, how did that come about?

CN: In the 1980s version of the flow program—the In-stream Resource Protection Program, which was primarily for the Puget Sound watersheds—we didn't look so much at off-stream needs as flow to protect fish while addressing future water rights decisions. Once the top-down method had stalled, a new approach was needed. For a while, there was lots of arguing about the definitions of terms and an amount of associated flow. Ecology proposed an approach that involved bringing all interests to the table to resolve issues of fish protection and off-stream supply and to discuss trade-offs and best solutions. Our approach also had no net loss of fish habitat as a major component. That was very controversial, as normally off-stream water rights did not often include mitigation requirements. The proposal was not accepted when proposed, and we had years of arguing over fish versus off-stream water supplies.

The Chelan Agreement, which was signed in 1990, was the result of a statewide effort to get together and say, OK, we can't move forward with in-stream flow planning and water supply planning at all unless we sit down and agree on

something. So, the two outcomes of that Chelan Agreement were, one, that there was going to be a regional pilot project—one on the east side and one on the west side of the state—to try to put into effect this new approach to watershed planning, or water supply planning and in-stream flow negotiation. The other outcome was a statewide policy forum. The forum met for a year or two, and they came up with some good ideas, and some very good work on the most controversial topics. The regional watershed planning for the west side of the state occurred in the Dungeness Watershed combined with the Quilcene. The Dungeness was chosen as one of two pilot areas under the Chelan Agreement, which was the culmination of lengthy negotiations under Booth Gardner's Administration. An important background factor was the status of the United States v. Washington Phase II litigation, when the tribes were considering specific facts and situations related to lack of protection of salmon habitat by the state. One possible outcome of legal arguments could have been the tribes being awarded rights to in-stream flows with priority dates senior to permits issued by the state. If such senior flows had to be protected, this could pose water availability and enforcement issues for the state-issued rights.

So, back in 1990, the Chelan Agreement was signed among all the different water interests in the state, agreeing on a new approach to watershed planning. It was pretty different from what we had historically done, and I became responsible for implementing the 1994 Dungeness Quilcene Water Resources Management Plan.

MM: Can you tell me a little bit more about the Dungeness River and what part of the Olympic Peninsula you're talking about?

CN: I'm talking about the northeast corner of the Olympic Peninsula. The Dungeness River itself is a short, steep river that comes down from the Olympic Mountains onto a broad, flat plain before draining into the Strait of Juan de Fuca. For planning purposes, we expand the term to Dungeness Watershed—the area actually covered in watershed planning—which goes further to the east, as far as Sequim Bay, and significantly further to the west as far as Bagley Creek and Siebert Creek, a little more than halfway between Sequim and Port Angeles. Sequim is kind of famous for being in a rain shadow, because of where it is in the Olympics and because of the prevailing storms dumping much of their precipitation before getting that far east. The lower valley gets very little rainfall, so they really rely on the wintertime snow pack. They don't have the benefit of much glacial water. When the snow melts and is all gone and it's not raining, you're relying on what's traveling underground and reaching the stream that way.

I'm the Watershed Lead for the Elwha-DungenessWater Resource Inventory Area (WRIA) 18. But the Water Resource Inventory Area is based on something less than county boundaries. It's based on river basins, more or less, not always perfectly because it's really hard to draw lines where there aren't rivers. Back in the Chelan Agreement, they took part of, or most of, the Quilcene inventory area for watersheds, and they joined that with the Dungeness, which is the east side of the Elwha-DungenessWRIA.

MM: What was the significance of establishing Water Resource Inventory Areas?

CN: The significance of the WRIA is that flow rules are organized by inventory area. The in-stream flow rule essentially establishes a water right for a certain level of stream flow. In many cases and many times, it's a hypothetical because the in-stream flow rule can never affect an existing water right, except voluntarily. So, if somebody has a surface water right

that they've been irrigating with since the '40s, and it's a valid right, they would not be affected by a later in-stream flow rule. If somebody had a groundwater withdrawal that they had put in with or without a permit from the state—because you can do it in two fashions in certain cases—they would not be affected if they predated the rule. Once the rule goes into effect, any subsequent water development is potentially affected. So, the level of flows we set to protect fish, while those flows may or may not be there, are what we use as the yardstick for determining whether there is water available for future development. It also indicates what the fish would need for significant habitat and flow restoration, although these recommendations have not generally been designed as flow targets. The in-stream flow rule sets a level of protection for what might be left of fish habitat and also makes securing non-interruptible water rights difficult.

The exemption was supposed to be for small developments in rural areas, but became abused as a way of short-circuiting Ecology's long line for water rights. A lot of development that otherwise would have required a state water right permit was slipping through.

An issue back in the '80s, and which has become really a big issue since then, is the subset of people who established groundwater rights without coming through the state permitting process and instead used a limited statutory exemption in the state groundwater law. The exemption was supposed to be for small developments in rural areas, but became abused as a way of short-circuiting Ecology's long line for water rights. A lot of development that otherwise would have required a state water right permit was slipping through. In many situations, people don't get a water right from Ecology, but get by with a county determination that there's enough water to support their new use. Back in the '80s, we did not make the connection between ground and surface waters as clearly as we do now. Ecology did address groundwater, and we did address effects on stream flows. But we did not go the step we have now, going to the counties and talking with them about cumulative effects of issuing the building permits and making findings of the water being available for well drilling under the exemption. So, when we adopt an in-stream flow rule, and it affects everybody in the basin who needs new water rights, whether they want surface water or groundwater. One of the things that have changed is our understanding of the effects of groundwater withdrawal on surface water. Another is the amount of growth pressure in some watersheds, and another is the chance to talk with the counties about water supply through watershed planning.

MM: So, when you talk about the in-stream-flow rule and how much water you need for fish, is that your baseline? Do you say, OK, we need to leave this much in-stream for fish, and now we have this much that we can appropriate for other uses?

CN: Well, let me back up a little bit. The prior appropriations doctrine reflected in the state water code refers to the first person who uses the water legally having the most senior right. "First in time is first in right" is a kind of water-law slogan. For example, in the Dungeness, you have irrigation water rights that date back to 1895, which predates the state's water code. The water code wasn't adopted until 1917, and then the groundwater code came along in 1945. Then there are tribal water rights. The Dungeness is the home river for the Jamestown S'Klallam Tribe. They are a Steven's Treaty tribe, so they have an

unquantified claim on the river for habitat that will produce salmon, which hasn't ever been addressed, as far as defining a number for that, but it could be addressed at some point in the future. The irrigators have major irrigation rights that line up—1895, 1903, to 1923. They're holding the bulk of the water rights on the river, and they're taking directly out of the river in the irrigation season, and then they can take year round for stock water. So, when we come in, in 2005 or 2006, with our in-stream-flow rule, we have to assume that all that water is taken out under the irrigation rights. For example, when it's a good year for water, and the irrigators are diverting, they might take the river level down to a couple of hundred cubic feet per second (cfs) in September. We'd be happy if it was about 200 cfs in September because that's a really critical time. The in-stream flow recommendations based on technical studies say that 180 cfs below the irrigation diversions would provide very high levels of spawning habitat for the fish. If you were going to go for an amount that went in the direction of maximizing fish production, as far as the flow component goes, you'd try to have about 180 cfs in the river. But our in-stream flow rule cannot force 180 cfs. In 2005 we'll adopt a rule that sets levels of flows over the year, including180 cfs during the summer and fall. If that amount of water was in the river and unallocated to water rights, we could protect it. But since much of the water has gone to irrigation rights, the rule can only protect what is left, when it's there. And we can condition future water rights to protect that amount. When the irrigators agree to reduce their diversions, in spite of their senior rights, that puts water back in the river. They have increased the efficiency of their old infrastructure quite a bit and the water savings show in the stream flows now. The irrigators have also agreed to leave 50 percent of their river flow regardless of their water rights. The state and irrigators have worked out a Trust Water Right Memorandum of Understanding (MOU) that protects the saved water and splits it between in-stream flows and future agricultural uses, 2/3 and 1/3.

So, under the current rights there's already as much as 80 cfs plus taken out, legally, and other impacts from groundwater withdrawals that aren't even being counted. When we administer the rule and make future water rights decisions, we can say, if you took any more water out of the river during the late summer, in most years you would be impairing stream flow because it's already reduced too far. It's already stressing the fish. The stream flows are already identified as a factor limiting to salmon production and fish production. We'd probably say to an applicant for an industrial use, sorry, there's no water available during the low-flow, time of the year, but there may be water available during high flows. For drinking water supplies, since they're essential to all of us, we're developing a new approach, which reserves a limited amount of water for future residences. This small reserve will not be subject to interruption when the flows drop, so people will have secure supplies. In watersheds like the Dungeness, where late summer flows are so important, there will be several conditions that go along with using this water, such as it being mostly for in-house use, with water-efficient practices, and development of longer-term alternative supplies. Actually, what we're trying to do with our in-stream flow rules and watershed planning is to confront people with this dilemma, have them understand that this crunch time occurs in the late season when the needs of fish and people are both high, and have them come up with strategies to meet the needs. Maybe they'd propose something like an off-channel storage project to mitigate late season withdrawals, like what's been proposed by the Agnew Irrigation District in Dungeness.

MM: When you mention critical times, do you mean they're critical because fish aren't able to migrate, or do you actually mean they're critical because you're not getting the mountain runoff or the necessary precipitation to maintain the flows in the watershed?

CN: It's both of those, actually. The summer low flows occur when snow pack is melted off and the river flows are naturally dropping and the irrigation demand is high. This becomes critical because of salmon migrating upstream and spawning in August and September. Flows that are too low can mean barriers to fish passage, or temperatures that are too warm, or that fish spawn in the main deep channel and are therefore more vulnerable to scouring when flood flows move gravel in the river. That could mean too much flow taken out of the river at critical spawning times, which, for the Dungeness, is August through September. Those are the main months that people focus on for the Chinook salmon. So, that's one definition of the critical times when it's consistently limiting to the salmon production. If you fix that, that would alleviate some of the problems. Another problem is drought years, where things are critical for much of the year. For instance, right now the Dungeness should be just ending its major runoff time because it's a big snowmelt stream. But currently the Dungeness River near Sequim has a flow near the lowest flow recorded in seventy years of stream gauging.

MM: What does that translate to?

CN: Well, the minimum that's ever been recorded is 258 in 70 years of record, and what we'd ordinarily have is 615. So, that seems to indicate the snow pack is already way down, and now the neighboring one, the Elwha River, is in worse shape. They are setting the new low flow for the date. Their current flow is 801 cfs. The minimum that's ever been recorded is 874. So, they're almost 75 cfs lower than normal. A regular year would have 2,080. They're that far off. This could mean high water temperatures, slow water and diseases later in the summer, especially in the Elwha.

MM: And this is all because there wasn't enough snowfall this past winter?

CN: Right, and one of the interesting issues in regard to climate change is that both the Elwha and the Dungeness are in the band of elevations that are likely going to be the most impacted with the warmer temperatures. So they won't accumulate as much snow pack. Elwha has more glaciers and a lot bigger watershed. But, boy, it certainly did not get the snow this year. Right now we're looking at diminished flows that we'd ordinarily find well into the later summer.

MM: So, what's going to happen in August and September?

CN: Well, the Elwha will probably have pretty significant temperature problems because it's got the dams on the river, which warms the reservoirs up. When the water temperature rises, the fish get a parasitic disease that is really damaging to the population. I believe one of the ways this has been handled has been to pick the fish up and move them somewhere where there is better water quality and better temperature.

MM: You mean, people go in, physically, catch them and move them?

CN: I believe they do. As far as flow is concerned, it's hard to put more water in the river when it's not there to begin with. We can try to convince the major water users that they should not divert at the critical times. I think, one of the big pulp and paper mills still

operating up there that takes a fairly significant chunk of river water has been willing to schedule their maintenance time during late summer. They can schedule for a two-week shutdown, but they can't necessarily shut down for two months.

MM: And this is on the Elwha River?

CN: Yes, that was the Elwha. On the Dungeness River, the farmers have made an agreement with the Department of Ecology under a Trust Water Right MOU, as a result of the early '90s planning where the tribe and the farmer irrigators actually forged a truly innovative agreement on restoring stream flows. The irrigators agreed that they would never take more than half the flow in the river, regardless of their water rights. Back in 1924, they were adjudicated humongous rights. According to the records, there was one district that came in, waved a roll of maps and said, hey, we're working on funding, and the judge awarded them 50 cfs because they thought they were going to get their funding and infrastructure together, but they never did. So, the irrigation companies and districts were awarded 518 cfs out of the river. And now the ordinary natural flow of the river is about 150 – 180 cfs. So, we are all kind of puzzled when we look back to early last century. Record keeping wasn't as good then, and of course stream gauging was just starting. The irrigators understand that they don't have anywhere near, nowhere near those water rights, and, as a result of this agreement that they reached during the Dungeness/Quilcene planning, there's been a lot of work done on improving the efficiency of the irrigation system. The farmers basically said, we don't want to give up our irrigation rights, and we want to maintain farming as a way of life. So, we need X amount of water to do that, but we don't need to waste all the water that we have been wasting. They're talking about water that's been flowing into the aquifers and running off into the straits. So they've really focused on that. They've spent a lot of money on tight-lining and putting their leaky old ditches into pipes, so they will have the advantage of that, when push comes to shove, this summer because they will need to divert much less water for their fields and meet their agreement to leave 50 percent of the flow in the river.

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MM: Is the Dungeness a popular salmon fishing area? Is it an important river to those who fish?

CN: I think both Elwha and the Dungeness have been really important. For the whole Strait of Juan de Fuca, from the Makah Reservation eastward, the tourism from sports fishing has been one of the ways people in the area made their living. The listing of the salmon as endangered species and the cutbacks in catch levels to protect the stocks and manage fish joint with Canada have hurt them. The tribes fish for subsistence, ceremonial needs and for commercial fishing. The farmers from that area say one reason they've been willing to make the kind of concessions they have is because they used to be salmon fishermen themselves. They all live in the community together, and they've all seen the

decline of the salmon. Of course, there are arguments about the causes of the decline, and how best to fix it, but I think it's pretty cool that the farmers have come forward and said, you know, we're part of this community, and we want to help the fish. They've carried through on an agreement to be part of a larger effort to restore the habitat and fix the other problems that impact the river's health and fish habitat.

MM: Is there concern that the decline in salmon populations might plummet to a point where certain species of salmon are completely wiped out?

CN: Well, I'm thinking of the huge Chinook that used to come up the Elwha, which we now no longer see. I believe people suspect that, even with the Elwha dams taken down at some point in the future, the genetic stock of those huge fish may not come back. But you still have the watershed there, largely untouched, once they get rid of the dams. Over time, assuming that it still rains and snows, the potential is there to get them back. The spring Chinook run in the Dungeness was in such critical condition that the state and tribe cooperated on a special captive broodstock program to raise some of the last wild spawning Chinook eggs in the hatchery under special conditions.

MM: Is global warming a concern?

CN: It is for many of us. It's not universally believed, of course, or acknowledged, but it's a big concern, especially from the water rights and in-stream-flow point of view. That's because when we give away right rights, it's permanent. There's very little revisiting.

MM: I've been wondering why that is, because, as I see it, the only way one can make a permanent decision that takes in all the mitigating factors would be to have a crystal ball, which would allow you to know about population, and development, and future irrigation, and weather, and all these other factors. So it seems, from an outsider perspective at least, a really odd way of making these determinations. Is that how you experience it on the on the inside of the process?

CN: Well, you generally can't revisit water rights decisions. You can revise the process from now on, but not what's happened before. That's because when the state gave water rights out, they became attached to the property, so they are a form of property right, known as a usufructory right, or usufruct.

MM: A what?

CN: Usufruct.

MM: It sounds like you're cursing in German.

CN: Yeah, or like we're talking about some strange variety of broccoli. Usufruct, as I understand it—I'm not an attorney, but as I understand it—means that you have a right to use the water under the conditions that Ecology granted you the water right. A water right is permanent only if you exercise it and maintain beneficial use of it under the law. There is a whole section of statutes on the books that say, if you don't exercise this water right, and you don't use it for more than five years for any reason other than these listed in the statute, then you're losing your water right. You're starting to relinquish it, giving it back to the state. Well, that's great on paper, but we are so, so far behind in catching up with those situations. It's almost unknown among the public or even landowners that that's a

condition of a water right. We have a widespread misperception that the piece of paper that people might get when they buy a piece of property, which lists, for example, 3 cfs, means that's indeed their right. Well, if it has not been beneficially used for some time, they may have little or none of it left. But they may start using it again, and it may or may not come to our attention. This was something the planning units were concerned about, the need to update the paper water rights to reflect their current status.

MM: One issue we've passed over is how a watershed becomes part of a water resource inventory area, and how those decisions are made. I imagine that this impacts the work of watershed planning.

CN: Back in 1971 the state passed the Water Resources Act, which was another layer on top of the 1917 Water Code that talked about how to give water rights out. We had a law passed in the '60s about relinquishment that talked about how you have to behave in order to keep those water rights, and then, in 1971, the Water Resources Act said, hey, there's other things we ought to do in order to maintain good stream flow, including protecting in-stream resources like fisheries and scenery and water quality and recreation and navigation. All those things are valuable uses for water in the stream. So let's develop a statewide plan that talks about the best way of protecting in-stream flows while we deal with future water supplies. The legislation said that we could do that area-by-area; we didn't have to do the whole state simultaneously. So, in order to move forward with that, the state said OK, we're going to look at the watersheds and try to divide these up logically based on hydrology and watershed function. In some watersheds it's straightforward, where you have the mountains, you see the tributaries, and you have a river within one county. Our job was to try to base it on the kind of boundaries that made sense from the water resources management point of view. But then there were places where that didn't really work out neatly, where you had little watersheds or more than one county.

So we have wound up with a map of the state that shows 62 areas that are called Water Resource Inventory Areas. Those are what we use for the watershed planning. As I said before, the Dungeness is on the eastern side of the Elwha /Dungeness inventory area, there are one or two little independent streams east of the Dungeness included within the inventory area boundary and to the west, some of the small drainages there are included in the larger Dungeness watershed. These small independent drainages that rise in the foothills are rain- or snow-fed streams, but several that are less than 10 miles long flow directly to the Strait of San Juan de Fuca. When you work your way west to the Elwha drainage, the whole aspect of the watershed and the mountains changes. You don't have a big, broad plain anymore. You have steep rivers and bedrock with steep hills almost to the shore. So, with the Elwha and the Dungeness, we've got two very different major drainages within one Water Resource Inventory Area. In fact, during watershed planning, we were asked to divorce them.

MM: So, you'd make two Water Resource Inventory Areas out of the Elwha and the Dungeness?

CN: Well, you could, potentially, but the way it sits right now, it's a single one, and that's how we did our watershed planning.

MM: OK, now I understand. The connection between the Elwha-Dungeness Watershed is that they are part of the same Water Resource Inventory Area, and they're on the Olympic Peninsula together.

CN: Right, but they're very different. Port Angeles is not nearly in the rain shadow that Sequim is. Port Angeles is very industrial, has historically produced forest products. Sequim is very agriculturally dominated. I'm sure they had forest products there initially when they cut the forest back in the last 1800s and early 1900s, but now it's largely agricultural. The Elwha watershed is much larger than the Dungeness and extends south into the Olympic National Park.

MM: So the Elwha is connected to the Port Angeles and Dungeness is connected to Sequim? Do I have that right?

CN: Yes, the Elwha River is just west of Port Angeles, but that's where they get their water supply, and then the Dungeness River is near the City of Sequim, and then the Quilcene River further to the east, around the corner, is Port Townsend's water supply. And so, back in the Chelan pilot project, back in the early' 90s, they included the Dungeness in the eastern part of WRIA 18 and also the Quilcene watershed in WRIA 17 and put them together because of the folks who were doing the initial pilot for the new style of watershed planning wanted to have both the industrial system and agricultural elements in the regional pilot plan. They thought, well, if it's just the Dungeness, then that's not complicated enough, but it was plenty complicated and, as a matter of fact, part way through that planning process, the Dungeness and the Quilcene did go their separate ways, each developing a watershed-specific chapter of recommendations. The Elwha wasn't included at all in the pilot planning.

By the way, the Chelan-based watershed planning of 1990 was really different from the 2514 watershed planning that we're involved in now. The Chelan Agreement never went through the Legislature, and it never got codified in statute. This current one obviously did get codified in statute. The legislation took many of the mechanisms that had been talked about in Chelan and included them in the watershed planning. It was less friendly to the tribes, but it did have everybody at the table, and it had overlapping goals, such as trying to meet the fisheries needs and the development needs and restoring fish habitat. So, they had many commonalities. One complaint about the Chelan pilot plans was the lack of implementation funding once the plan was completed. It looks like the commitment to implement these watershed plans is firmly in place.

MM: So, we know there are at least 62 planning units in the state because there are 62 Water Resource Inventory Areas, right?

CN: There are actually fewer than 62 planning units because not every inventory area has taken on watershed planning, for one thing. Some of the largest watersheds are broken into two WRIAs, like the Skagit and Chehalis. So, the two WRIAs would be planned for together.

MM: Does the Watershed Planning Act dictate that every WRIA will have to take on watershed planning?

CN: Well, local people have to decide, at the watershed level, if they want to take it on.

MM: So, is that a local decision?

CN: The Watershed Planning Act is a locally-dominated and locally-oriented discussion and thought process about water resources and water supply issues. That's very attractive to people. However, if they don't do it themselves, Ecology can come in and develop an in-stream flow rule if needed to move forward on our statewide program. When the local folks decide they want to take on watershed planning—some where an in-stream flow rule might already be in place—they might have issues like fish restoration or water supply. I think one of the biggest issues is the effects on streams as we see more development from changes in land use, flows and in the river. Low flows can be made worse by increased summer demand or less snow pack being retained in upper watersheds. Reduced recharge to aquifers affects groundwater supplies and the base flows, which feed streams after the snow pack is melted. Impervious surfaces like roads and roofs intercept rainwater that otherwise would have fallen on vegetation, where it can then be drained offsite to a stream or ditch. A really key piece of implementing watershed planning will be to see if the land use, water management and restoration efforts can all be brought together in managing the watershed.

MM: Have you ever had confrontations where you realized you weren't popular as a person from Ecology?

CN: Oh, constantly.

MM: How do you deal with that?

CN: I try not to take it personally and to listen for the underlying concern. Sometimes fears can be allayed, other times not. I try to have a broad discussion during watershed planning and during the rule workshops. Our watershed plan just got adopted by the county commissioners a couple of weeks ago. Now my job is to move forward with developing the rule, and what I am trying to do is to find the overlap of where needs can be met. I assume I won't be popular during these discussions. One of the historic strengths in Dungeness Watershed planning has been willingness to set aside arguments over rights and jurisdiction in favor of problem solving.

Our watershed plan just got adopted by the county commissioners a couple of weeks ago. Now my job is to move forward with developing the rule, and what I am trying to do is to find the overlap of where needs can be met. I assume I won't be popular during these discussions.

MM: Is their concern related to the fact that the area is popular for retirees, making it an area with potential for development?

CN: Yes, I think so. You see, back in the '60s and '70s and earlier, you had this wonderful pastoral scene of dairy farms and farmers, and the small town of Sequim, but then, starting in the late '70s, I believe, the county started talking about land-use planning. There was a huge rush to subdivide all these farms, all this land. Then with the Growth Management Act, I suspect there was probably more of the same because people wanted to make sure, of course, that they could develop and reap the benefit of having this property. Maybe farm kids didn't want to stay in the family business, either, so that might have been a factor. At the same time people are realizing, well, they're losing

their farming community, and they really want to maintain the valley's agricultural community. But when you look at a parcel map, you can see many of the farms have already been parceled, and every time I go up there and drive around, there's a farm for sale. There's a group, Friends of the Fields, trying to save farms by buying them. I believe the Puget Consumers Co-op got involved in saving some farmland to be used for organic farming, too.

MM: I imagine that's not Ecology's task to come in and impose rules that are there to stop development. I mean, it's an outcome or it's a result of the work you do that you have to say no because, guess what, there's not enough water. Am I right?

CN: Yes, and some people on the environmental side really want to use water as a means to stop growth.

MM: Is that the kind of tension that you work between?

We don't think it's our job to stop growth. I don't think politically the agency could withstand it. We are there to protect existing water rights, the public interest, in-stream flows and beneficial uses.

CN: Yeah, there's more than one angle to it, and more than one fact, such as the existing water rights that impact streams already, the push to develop, ESA listings and unquantified tribal claims to water. We don't think it's our job to stop growth. I don't think politically the agency could withstand it. We are there to protect existing water rights, the public interest, in-stream flows and beneficial uses. That reminds me of what happened back in '87, when we first got the brakes put on the in-stream flow program That led to years of arguments, then the Chelan Agreement, followed by the big 2514 watershed planning effort. So, when we talk about messing with growth and things like that, I'm careful. I assume there's a lot attached to it.

MM: In terms of development, and the impact of development on water quality, how are the waters of the Dungeness and the Elwha rated?

CN: The Dungeness has been included on the 303(d) list for in-stream flow under the Clean Water Act. That list reports the water bodies with data indicating impairment. The listing process and categories have recently changed, the Water Quality program would have details. So you have a list of pollutants, but then you also have in-stream flows, which is a different nature of pollution because it's not really adding something to the water that pollutes it. Instead you're subtracting something that is causing water quality and beneficial use problems. For example, low in-stream flows or temperature. The Dungeness is listed for low in-stream flows, and there are also problems with bacteria in the lower river. The whole lower river, tributaries and the Dungeness Bay have problems with fecal coliform.

MM: Is the fecal coliform from septic systems or ag runoff, or what is that from?

CN: Probably both, or even other sources like pets. The ag people and conservation district have done quite a bit to try to minimize the runoff into irrigation ditches. They are not completely successful yet, but they're working on it. I understand part of the major EPA

watershed initiative grant the tribe recently won is funding an on-site septic inspection and education program at the County. The little streams, the tributaries that come in near the mouth of the Dungeness, have fecal coliform problems. We did a study, a total maximum daily load study (TMDL), where reaches are analyzed for pollutant loading and target numbers are established for improvements. That covered the lower river and several of the nearby tributaries that were all flowing out in this vicinity. Then we did a TMDL study for the Dungeness Bay itself because the bay is really suffering from pollution. They have commercial shellfish beds there, owned by the tribe and private commercial growers

MM: Are you talking about Sequim?

CN: Well, the Sequim area. It's seems it's more the general rural development and animal input that may be the problem rather than the city. At the mouth of the Dungeness River there's that beautiful spit. The wildlife refuge is out there; it's a popular place to go walk. Some people claim the seals and sea lions are the main problem, others point to waterfowl. There is slow tidal exchange in certain parts of the bay. And when it rains, the mouth of the river really pours pollutants into the bay. Over the years, there's been a steady downward trend in the water quality. So, that's meant that, bit-by-bit, the tribe and these commercial shellfish growers have had to shut down their operations. There's a major local effort with help from the state and federal agencies to try to get a handle on the fecal coliform, get the bay cleaned up and get these shellfish folks going again.

Over on the Elwha, they've noted temperature problems, and there is a problem identified in the Port Angeles Harbor. It's got real problems with the low dissolved oxygen, and used to be a huge log rafting site so there was lots of opportunity for wood to wind up on the bottom of the bay. The old pulp mills probably contributed to changes in the bay. I think the Elwha has also been listed for temperature and PCBs.

MM: What is the historic use of PCBs that have ended up there?

CN: Perhaps from the dam and hydroelectric operations, I'm not sure. That's outside my area of expertise.

MM: When we talk about dams and resulting pollution problems, that brings to mind the issues of natural environment versus manmade environments. What kind of shorelines and riparian ways are necessary for fish to thrive?

Fish need the natural shorelines to thrive, in fresh water and salt water. Recent research has shown the riparian forests need the fish, too, to bring nutrients.

CN: Fish need the natural shorelines to thrive, in fresh water and salt water. Recent research has shown the riparian forests need the fish, too, to bring nutrients. The riparian edge of a stream, the trees along the bank provide shade and food. The bushes drop bugs and other food and help fish hide from predators. Side channels are a really important component because they provide slower water during flood flows, for example. Fish also need the river to be stable and not move back and forth across the flood plain, which the Dungeness is prone to do. The trees along the stream also fall into the river and wind up as part of the river habitat. They can slow down floodwater, make the channel more complex and suitable for fish use, create ponds and feeding areas. The Dungeness is

one of many rivers where big logs are being added to the river to try to restore stability and habitat.

A major upper watershed landowner and forest management agency, the U.S. Forest Service, has become a very active partner in salmon restoration and habitat restoration over the past several years. They have a small number of watersheds on the West Coast where they form partnerships with groups interested in habitat restoration and local watershed councils. They've picked the Dungeness as a focus watershed, and they've been able to give some extra money there, going so far as taking out roads located on unstable slopes or built too close to the river. In some places they've completely obliterated the roads, an expensive process, but it really helps when you don't have that destabilizing cut across the slope anymore. Another problem is dirt roads built right next to the stream because that's the easy place to build, but when you're right next to the stream, you've got a steady load of sediment that moves.

MM: So, these trees kind of serve as a filter for the water, and, also, when you say, loss of riparian buffer, does that impact temperature as well?

CN: Oh, absolutely. The trees and vegetation are providing shade to the stream. Another area we're learning more about is the hyporheic zone, the saturated and flowing water underground and adjacent to the streambed. This is part of the riparian zone, also, and likely plays a role in stream temperature. Over time, the big riparian conifer trees are what you want to be naturally falling into the river to add large, woody debris to stabilize the stream. One of the problems with the Dungeness is that at the advice of experts, people actually took bulldozers out onto the river gravel bars and gathered up all the wood they could and burned it.

MM: Why did they do that?

CN: Because it seemed like a good idea at the time, and a "clean" river was considered desirable. That was decades ago, but some people still like do that. Now we're spending a lot of money trying to figure out the best way to put wood back in the rivers.

MM: How can development impact water flow?

CN: Land division is a problem because of the impervious surfaces, such as pavement and roofs which intercept precipitation and can drain it away from the site into ditches or streams. This means the precipitation isn't filtering into the aquifer to recharge it, which can affect both groundwater supply and base flow in the streams. There's an approach called low-impact development that's catching on now, we hope. That includes the methods of building that minimize your effect on stream flow and put pervious surfaces where you might have had impervious before, like there's concrete that actually will let water through it. Some Puget Sound communities are incorporating it and it's in the Elwha-Dungeness watershed plan as a strong recommendation.

MM: That sounds like an innovative with excellent potential. Regarding the future, what will life in the Dungeness Basin or Elwha Basin be like after all the salmon recovery plans are implemented? What would fish populations look like?

CN: In the best-case scenario, we'll have healthy fish populations resilient enough to withstand effects of climate change and more development. We would have addressed the

elements already identified by local biologists as necessary for healthy river function and support of all salmon life stages. We would have restored riparian corridors, widened river channels, and stabilized with dikes set back and enough late season flows to provide a substantial amount of spawning habitat. Estuary habitat would be restored as possible with protection of the natural shoreline in place. People would be able to fish recreationally and commercially. We would have implemented water conservation and efficiency measures and public education so people understood the connection between their use of water and land and integrity of the river and needs of the fish. We'd have made significant progress on alternative supplies for water. People and governments would have realized that maintaining a healthy and well-functioning watershed is the most cost-effective way to manage growth and resources.

MM: Do you even try to set a date as to when you'd be able to complete these things? It seems like there's so many mitigating factors that it would be impossible to predict, but is that something you're charged with when you put a plan in action? Do you have to say, we'll do X, Y and Z, and we hope to do it by thus and such a date?

CN: Well, that requires a more realistic look at what's possible. Managing restoration projects in the midst of an ever-changing watershed will be a region-wide challenge, given the growth in Puget Sound, potential effects of climate change and unforeseen factors. Every element of Dungeness salmon recovery has many, many steps, of course. The stream-flow restoration has been on track for several years, and although it still has a ways to go, the benefits to the river flows are already substantial. The schedule for the ag efficiency program calls for completion in twenty years. We currently have some funds for water acquisition and hope for permanent purchases of some late-season water rights as well as the current seasonal leases. Updated water right certificates are likely a prerequisite for that, which will take two or three years of work that we are starting now. The deconstructing of the river's dikes has begun, starting with the lowest dike at the delta. The restoration of a more natural channel will take substantial amounts of time, money and cooperation from government agencies and landowners. This is a big project and the Dungeness partners are taking it a step at a time. Purchase of property or conservation easements along the riparian corridor is moving forward. The in-stream flow rule is on schedule for this year, with adoption this winter. Ecology and the County will be working together in the coming months to develop procedures to implement the watershed plan. We'll have to figure out how to integrate the building permit process with a water conservation efficiency program and work on securing some big money for future water supply projects. Water quality is being addressed on several fronts, with the County on-site program, the Tribe's EPA grant, the irrigators' and conservation district's piping projects and other public education and outreach. So much is already happening in the watershed on so many fronts that progress is being made all the time. Maintaining the leadership and partnerships among local government, irrigators, the Tribe and agencies will be fundamental to ongoing success.

MM: How long will you continue to work on this effort?

CN: I've been working up in the Dungeness for 11 years now. I'm not going to be able to retire anytime in the near future, for sure. Ask me again in several years.

Chapter Five - Shifting Standards: Treating Wastewater Discharges to Puget Sound

After a 1977 amendment to the Federal Clean Water Act, the Department of Ecology was faced with a critical and controversial decision: Should publicly owned treatment works (POTWs), discharging to marine waters, be allowed to seek a five-year waiver from the requirement to apply treatment standards equal to those of Washington's freshwater POTWs? Or should these municipal treatment facilities discharging to saltwater be forced to spend millions of dollars to update their technology to meet the higher treatment standard? Re-examination of Washington state Water Pollution Control Law provides the key to protecting Puget Sound from toxic wastewaters and the resulting contamination of state waterways and shorelines. The old arguments, "dilution is the solution," and "the world is at our disposal," are challenged and, to an extent, defeated. Interviewees offer a historical perspective on water-quality issues particular to the west side of the state while addressing the legal, scientific, economic, and regulatory framework for one of the agency's most crucial water-quality decisions to affect Puget Sound.

Chapter Advisor: Bob Monn, Web Manager and Information Technology Strategist, Information Services, Washington State Department of Ecology

Interviewer: Maria McLeod

Seeing Under Water

An interview with Dave Nunnallee
October 6, 2004


Nunnallee

Position held at time of interview:

Municipal Unit Supervisor, Water Quality Program, Northwest Regional Office, Washington state Department of Ecology, since 2001

(Employed by Ecology since 1976)

Education:

- Master of Science Degree in Sanitary Engineering, University of Washington, 1968
- Bachelor of Science in Civil Engineering, University of Washington, 1966

Maria McLeod: Dave, this chapter focuses on water pollution control for wastewater treatment in particular, especially focusing on what was, in the mid-'80s, the controversial decision by Ecology to require improved treatment methods. As a means of getting to that, I'd like to know about your history with the agency and this issue. What has been your history with the Department of Ecology and, in particular, water pollution control?

Dave Nunnallee: My career began in 1969 with the predecessor to the Department of Ecology, the Washington Water Pollution Control Commission (PCC). That agency remained intact for about a year, until 1970, when the Department of Ecology was formed by coalescing several agencies together, including the old PCC. I continued to work about another year, until 1971. Then I moved out of state. I came back in midsummer 1976, and have been with Ecology ever since. I've always worked in the municipal end of the agency's programs, but actually that distinction is a more recent development. Early on, we didn't have municipal or industrial divisions; we basically did everything. Each person did solid waste and hazardous waste, cleanup, spills and inspections, and, of course, municipal and permits. Basically, each person did everything, and we had a very small staff. When I started with the PCC, our entire Northwest Region consisted of six people, and that included the secretary. Now we're 200—so it was a very different world.

MM: Six people regulating what size area? What did the Northwest Region include at that time?

DN: Same as today, basically. King County all the way north to Canada, to the crest of the Cascades to the East, and westerly out to the saltwater, including most of the islands—an area of seven counties.

MM: In terms of geographic area, how many square miles would that be? Do you know off-hand?

Well, I remember one time, when we were still a small office, looking over at my in-basket, which was stacked about 2 1/2 feet high.
I remember putting my elbows on my desk and holding my head. I just have to laugh. It was pretty routine to be so utterly swamped you couldn't get anything done.

DN: If I made a guess, I'd say about maybe 130 miles long, north to south, by, on average, probably 100 miles wide. That's crude, but that's approximately it.

MM: It sounds like you may have been busy. What was your work week like back in those days?

DN: Well, I remember one time, when we were still a small office, looking over at my in-basket, which was stacked about 2 1/2 feet high. I remember putting my elbows on my desk and holding my head. I just have to laugh. It was pretty routine to be so utterly swamped you couldn't get anything done. We were divided up into districts for much of the early part of the agency, both PCC and Ecology. For part of the time I worked what was called the Metro District—that's basically King County, Seattle area, the big population center. For another part of the time I worked what we called District 1, and that's the north counties: Skagit, Whatcom, San Juan and Island counties.

MM: What is your role now here in the Northwest Regional Office?

DN: I am the municipal unit supervisor for the Water Quality Program, which covers all the municipal wastewater treatment plants in the Northwest Region.

MM: What did you think were the challenges or the problems in enforcing water-quality standards early on in King County?

DN: Where do I start? We had very weak laws. Until the law was changed in 1973, the most we could penalize anybody for violating the water-quality laws was $100 per day—so small an amount, the polluters laughed at us. We had to cajole them into compliance. We had water-quality standards. We had laws, but the enforcement of those laws was extremely weak. We had such things as a concrete batch plant in Renton, daily dumping their waste concrete from the returning trucks right into the river, to the extent that they diverted the river against their neighbors' property, eroding it away, but adding to their own land. We had a slaughterhouse in Auburn that was dumping their paunch manure, meaning the animals' stomach contents, and their blood waste and everything else, right into the Green River. This was routine everywhere. The Seattle waterfront was always filthy. There were a lot of fish processors down there, and on the rare days when the tide would flush the bay enough that you could see the bottom, there would be fish heads all over. There was a company that processed salmon fish eggs for fishermen, and then they'd dump all the wastewater and the dye into the bay. The whole bay would turn bright red.

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MM: Can you remind readers what laws were governing water quality at that time and when you felt a change come about in terms of stronger laws?

DN: Well, the law was the same one we have today. It just has been added to, and it's RCW 90.48, the State Water Pollution Control Law. But there was very little in the way of penalties included in that law. The specific section that limits penalties is RCW 90.48.144. Prior to 1973, it limited penalties to $100 per day. After 1973, the limit was raised to $5,000 per day. Today, the maximum penalty is $10,000 per day.

MM: How did the penalties get changed?

DN: I can't tell you exactly where the pressure came from to change the law. It was more that a national conscience was developing. Over a period of time, as the environmental movement got moving, got growing, the Legislature changed the law. We did have federal laws that were becoming stricter, but ours actually preceded the federal laws. We started moving toward more environmentally conscious laws even before EPA did.

MM: We're going to be talking about the somewhat controversial '80s requirement to apply secondary treatment to wastewaters discharging to marine waters, focusing on the area of your jurisdiction, the Northwest region, especially Seattle's municipal wastewater treatment facility known as Metro. As a way of heading into that, could you explain how the facility became known as Metro?

DN: The formal name is Municipality of Metropolitan Seattle, nicknamed "Metro." That's the name that the Legislature gave to the entity when they created it. It took a special act of the Legislature to create such a unique entity, which had authority over all of the component agencies—the cities and towns and sewer districts, which are now tributary to Metro. The Legislature set Metro up as a regional planning and wastewater treatment

entity that had the authority to assess taxes. They had some pretty broad, sweeping authorities, some of which were later deemed to be unconstitutional. That's why Metro eventually was abolished as such, and was absorbed into the King County government. They're now part of King County.

MM: So what area, besides the City of Seattle, did Metro refer to?

DN: Metro referred to the entire greater Seattle area, going south as far as the drainage basin, which is Auburn. It went east as far as Black Diamond, and it served everything that's sewered on the east side of Lake Washington up through Renton, including Auburn, Bellevue, and Issaquah. North it went clear up into the southern part of Snohomish County, all of Bothell and the coastal area from Snohomish County south. There was a piece of the drainage area that protruded up across the Snohomish County line in the vicinity of southern Everett, so that was basically the area. There was a coastal strip on the southwest part of the area that started right at about the Seattle city limits and went south to Tacoma, just a narrow strip that didn't gravity flow into Metro. That has remained independent. There are five treatment plants in that area, which are owned by other entities. That would include the southwest suburban sewer district, which is west of SeaTac, and then Des Moines, and then the Lakehaven / Lakota area in Federal Way.

MM: So, I want to ask you a little bit about water quality during the time leading to the period when secondary treatment was mandated. During the early '70s through the mid-'80s, what was the quality of the receiving waters of northwest Puget Sound, and what was the general knowledge and level of concern about polluted waterways as a result of either municipal or industrial discharges?

DN: Frankly, we weren't too concerned about Puget Sound. The problem was the rivers and small streams that were receiving industrial and municipal wastewater that was not fully treated, or maybe not treated at all in many cases. Puget Sound, of course, had a much greater level of dilution. We did have a few problem areas in confined embayments, particularly if there was a large discharger. For instance, in Bellingham Bay there was a confined area where a pulp mill discharged, which was a problem. We had these little hot spots here and there in Puget Sound, but, overall, we really didn't have much of a concern for it.

MM: How does untreated sewage end up in the water stream? Didn't all sewage have to be pumped somewhere for treatment prior to discharge?

DN: The simplest form of a sewage system is to connect a bunch of homes into a pipe, and that pipe daylights into the creek. Until very recent times, we had a few systems that were still that primitive. Raw sewage simply would run out on the bank of the creek or the bank of the saltwater. The next step, of course, would be to put in a wastewater treatment plant to collect all that wastewater and treat it. The most primitive wastewater treatment plant is essentially comprised of settling tanks, followed by disinfection with chlorine. So, it's still not a very good level of treatment, but it's better than nothing, and that's what we call primary treatment. The next step would be to provide a biological treatment unit. So, downstream of the settling tank, you would put another big tank where you would aerate the water, and certain things would be done to re-circulate the solids so that they kept getting re-circulated and retreated. That's called secondary treatment. It takes many shapes and forms, but the most standard secondary treatment is the process we call

"activated sludge." For many years that was state-of-the-art secondary treatment. Now, we have many other technologies available, but they all do essentially the same thing.

MM: What's activated sludge? Are you putting oxygen in the sludge? What does that mean?

DN: Following the secondary treatment process I just described, solids are scraped off the bottom of the final clarifier and re-circulated back to the headworks of the plant, providing a living seed of bacteria to the process. This sludge return greatly improves the treatment efficiency, and is known as activated sludge.

You can treat wastewater with oxygen or without oxygen, but without oxygen the process is called anaerobic, and it gets very smelly. The effluent discharged has no oxygen, and so it can cause harm to the receiving waters. Anaerobic treatment will treat the wastewater, it will reduce the organic level, but the processes are very smelly. People don't want to be around them much.

MM: What was your involvement with the Metro Sewage Treatment Plant, and do you remember the controversy around the state requiring secondary treatment as part of all known available and reasonable treatment?

DN: Oh, absolutely. That was what we did for some years. I was directly involved with Metro in the early stages of that process. Another engineer and I actually switched districts, kind of midstride. The Northwest region was separated by districts. I went up to District 1 in the north, and he came down and worked with the Metro District. So I was directly involved with the Metro process until about halfway through. After that point, I was involved with other treatment plants up north, which were having the same problem going through the waiver process.

MM: Where is Metro, the plant, located?

DN: Actually, in those days Metro had five treatment plants. There was the big West Point plant, which is still there today, south of the Ship Canal Locks on the coast. There were three other plants: a primary plant at Alki, one further north up at Carkeek Park, and finally there was one up south of Edmonds, which we called Richmond Beach. There was also a secondary plant, which was always secondary, down at Renton, and it discharged into the Green River. Those were the five Metro treatment plants. Before I started with the PCC back in '69, Metro already existed. Metro was in the process of building sewer-line interceptors to go around Lake Washington to pick up and intercept a number of other treatment plants. There were little treatment plants all over the place that discharged into Lake Washington and Lake Sammamish and all over. The reason Metro was formed, in around 1966 or 1967, was to get all that wastewater out of inland waters and carry it out to the saltwater.

The reason Metro was formed, in around 1966 or 1967, was to get all that wastewater out of inland waters and carry it out to the saltwater.

MM: Get it out of Lake Washington?

DN: Yes, Lake Washington. It was constantly in the newspapers about how bad Lake Washington was and how much it needed to be cleaned up. The interceptions happened

over a period of several years, and there was a lot of attention given to how much better the quality of Lake Washington became. One of the standard measurements, which were used in Lake Washington, was a transparency test. The lake scientists, known as "limnologists," would take a disk, similar to a surveyor's target, called a "secchi disk." The secchi disk is about 9 inches in diameter and divided into four quadrants: black, white, black, white. They would lower that into the water until it disappeared from sight and measure the distance that it was below the surface when it disappeared. It's a standard oceanographic tool to measure the transparency of water. The rope is actually marked off in feet.

At its worst, Lake Washington typically had a secchi disk depth of less than 6 inches. That's because it was so enriched by all the sewage that was going into it, and that resulted in much algae growing in the lake. After all the sewage was intercepted, and Metro was well under way, the secchi disk readings increased on the order of 30 feet. That generated another problem, which was that people could then see all the trash on the bottom. There were all kinds of tires and metal and junk on the bottom of the lake, so everyone set out to clean up all the trash. But eliminating the sewage discharges made an enormous difference in the quality of the lake.

MM: Algae, could you remind me, appears in water when nitrogen is present, am I right?

DN: Algae is like any plant. It grows when you fertilize it, and fertilizer is typically nitrogen and phosphorus. There can be, depending on the water body, a variety of other things that limit algae growth, but it's usually nitrogen and phosphorus, or some combination of those two that are the standard nutrients for growing algae. Both of those two materials are very much present in sewage.

MM: So, talk to me about Metro and primary treatment. Was that the only technology available to them when they established those plants?

DN: No, secondary treatment was available long before the environmental movement got going around the mid 1960s, but it just wasn't deemed to be necessary. Initially, we, as an agency, officially agreed with Metro, that secondary treatment was not necessary in Puget Sound, and we supported them on that position after the federal government passed the law requiring secondary treatment of every municipality. We supported King County in seeking a waiver from that. We also supported the many other wastewater plants that discharged into Puget Sound because, both in the testing we had done, and the great deal of the testing that Metro had done, we really couldn't identify problems. Once you get a short distance away from the outfalls, you couldn't see many effects there. So, we encouraged the entities to apply for their waivers, not thinking it was that big a water-quality issue.

MM: However, those discharging to freshwater were, at that time, mandated to provide secondary treatment, correct?

DN: Even before the federal law mandated it, most entities on inland waters did provide secondary treatment, or something very close to it. Lagoon systems are considered secondary, even though they're not quite as good as, for example, activated sludge systems. There really weren't any primary plants that discharged to freshwater receiving waters. As I mentioned, I had left Washington and worked out of state, in Montana, for a few years, but when I came back in '76, this had become a pretty hot issue. Secondary treatment, by then, was required. There were a lot of studies, a lot of monitoring, being done to see whether

secondary was really needed for marine water discharges. Most of the studies and monitoring concluded, no, it wasn't, and that money would be much better spent doing something else.

MM: But, eventually the department began denying applications for waivers exempting dischargers from the requirement to add secondary treatment. So, at what point was there this shift, and why?

DN: Faced with the prospect of having to make decisions on a number of requests for waiver of the federal secondary law, Ecology's top management requested an Attorney General's formal opinion on the subject. The AG's opinion essentially stated that existing Washington law did require the equivalent of secondary treatment under the AKART requirement—all known available and reasonable treatment technology. This was Ecology's assistant attorney general's opinion, and it changed everything. This opinion was written in 1983, and from that point on, Ecology required all primary dischargers to begin the process of upgrading to secondary treatment.

MM: Was that Charlie Roe, the Ecology division chief of the Attorney General's Office?

DN: Charlie Roe, yes, and I believe Chuck Lean and another attorney dealt with the appeals.

MM: OK, so the Attorney General's Office and Ecology decide that secondary treatment is part of AKART. Then different municipal sewage treatment plants start resisting that, and for what reason?

DN: They couldn't demonstrate that there was a water-quality problem, nor could we, and so they felt secondary was a poor use of scarce public funds. However, some of the municipalities were never resistant to secondary treatment. I remember, for example, Des Moines Wastewater Treatment Plant kept asking us, when are you going to ask us to go to secondary? We need to budget for it. They were ready to go, and we said, well, we don't think we're going to require it. I remember having to put my tail between my legs and go back to Des Moines and tell them, well, guess what, we have an assistant AG's opinion now, so now you have to go to secondary.

MM: So how did the waivers come about? My understanding is that waivers never stated that they didn't have to apply secondary treatment, waivers just said, you don't have to do it now, is that correct?

DN: The waivers stem from Section 301h of the Federal Water Pollution Control Act. It's written right into the federal law, which requires secondary treatment. It stated, basically, if the so-called POTWs—publicly owned treatment works—can demonstrate that they are not causing any problems, not violating water-quality standards, not affecting fish, et cetera, then we can give them a five-year waiver from going to secondary. At the end of that five years, they have to demonstrate it all over again to get another five-year permit. They had to demonstrate that there was what is called a "BIP," a balance of indigenous population within the "ZID," the zone of initial dilution. This meant they had to do biological studies to show that the population of organisms in the receiving water was balanced, and was not being affected by the discharge within the initial dilution area around the outfall, the zone of initial dilution.

The reason the 301h waivers, the marine waivers, are not allowed here today is because state law prohibits it under the definition of AKART. In the case of Metro, in order to qualify for the 301h waiver, they actually went back to politicians in Washington, D.C., and they got a special congressional appropriation of $6 million to study Puget Sound. That was the first big study. They always had done routine water-quality monitoring, but this was a whole series of very detailed biological investigations in the vicinity of the outfalls, particularly their West Point facility.

MM: Did the National Oceanic and Atmospheric Administration (NOAA) conduct the testing?

DN: NOAA testing came later. At that time, Metro conducted the testing. They produced a huge series of technical reports on all of their findings. We had one person who was hired full-time to do nothing but review those reports. He worked for me at the time, and we had a big shelf full of reports. It was close to 5 feet long, and interestingly, the reports showed that there were problems.

They found an increased incidence of tumors, for example, in fish in the vicinity of outfalls, and some other fish diseases. They found that the biological community was obviously not pristine around the outfall. The solids that weren't removed in the treatment process would settle out and there was a kind of light sludge blanket, and an increase in various kinds of worms. It wasn't horrible, but it was certainly not a balanced indigenous population.

MM: If Metro was conducting the studies, how could that have been impartial?

DN: They're a good entity. They have always been honest. We had always trusted them. I never saw that as a problem.

MM: You mentioned that their reports showed that there were problems. What kind of problems?

DN: There were fairly minor problems. They found an increased incidence of tumors, for example, in fish in the vicinity of outfalls, and some other fish diseases. They found that the biological community was obviously not pristine around the outfall. The solids that weren't removed in the treatment process would settle out and there was a kind of light sludge blanket, and an increase in various kinds of worms. It wasn't horrible, but it was certainly not a balanced indigenous population. It wasn't a BIP, which was one of the requirements for a waiver.

MM: Metro did something special, though, prior to adopting secondary treatment. They had something called a pretreatment plan for industrial discharges, did they not? And, if so, I'm curious how that plan was used to support their hope of acquiring a waiver.

DN: Well, they'd been doing that long before there was the requirement of secondary treatment, and long before there was a waiver process. When I first came to PCC in '69, Metro had an aggressive industrial pretreatment group. They were constantly out, going to the industries and making sure that they were doing pretreatment. They had passed ordinances. Metro had ordinances, and some of the

cities also had ordinances, prohibiting the discharge of various materials to the sewer—flammable materials, for example, and toxic and deleterious materials—and regulating how much of the semi-toxic materials could be discharged. Metro inspectors would visit the industries routinely to inspect them and sample them, and they had a good program.

MM: We've been your using the term, "pretreatment." Perhaps you could define it before we go on?

DN: To have a pretreatment program basically meant Metro had several dedicated field people who went out and investigated these industries on a regular basis. If they found that they were violating their ordinances, they would penalize them or fine them, or they'd come to us early on and ask us to take enforcement action before we had fully delegated the program to them. So we met with them frequently. I think we had monthly meetings with their staff to go over all of their findings.

MM: I thought part of pretreatment meant that instead of having industries discharge directly into the waterways, or treat their own discharge and then send it out, they'd send it to the sewage plant first.

DN: The term "pretreatment" applies only to discharges going to a treatment plant; pretreatment is required of certain wastes to prevent toxics or incompatible pollutants from reaching the plant or passing through it. Some industries chose, instead of pretreatment of wastewater going to Metro, to treat their own wastewaters and discharge them directly to the receiving waters. To do so, however, they had to meet another set of strict federal criteria called "industrial effluent limits." Metro had responsibility for the pretreaters, and we, Ecology, retained responsibility for the direct dischargers.

MM: So, when you refer to the ones who were still yours, that meant you had to take responsibility to regulate them. Ecology had to issue the discharging permits for those industries.

DN: Right, and we still do today.

MM: And when industries flow into the sewage wastewater treatment plant, then the responsibility for permitting them and regulating them falls upon the treatment plant?

DN: It's become more formalized now. Back in those days we still had the responsibility for writing the permits, but King County—Metro, rather—was doing all the footwork. They were doing all the field work, all the sampling. They were identifying the problems, and we actually still issued the permits. Subsequently, EPA, following many additions to the Federal Clean Water Act, included provisions for delegating the pretreatment program to the local entity. They made that a possibility, and at that time we did delegate. Metro was the first one we delegated to because they had such an excellent ongoing program. They not only did the inspections, they also wrote the permits and enforced them, once they received delegation. They completely took jurisdiction for industries discharging into the treatment plant.

MM: In the end, did that work help them obtain 301h waivers, marine water discharge waivers?

DN: Certainly. They didn't get brownie points for having the program, but it kept a lot of toxic materials from going into the vicinity of the outfall where they did their studies. Had they not had pretreatment, there would have been a lot more toxics out there, and it would have been much more difficult for them to make a case that they weren't harming the environment.

MM: How do you know if toxics found near their outfall were from their particular outfall or from the industry upstream?

DN: Well, there were no industries that discharged near West Point. They were basically the only discharge there. By the way, today we don't have that many delegated pretreatment entities. Most of the cities and districts do not have delegation, and so we still write the permits for many industries, even if they discharge to a treatment plant.

I remember the mayor of the city with his hands and his arms stiff on the table, leaning over nose-to-nose with the guy from EPA who was doing the same. They were screaming at each other—a really angry shouting match.

MM: Do you recall, during this time period, various city officials from the affected area, basically the coastal area, appearing before the Legislature and saying that they would never apply secondary treatment? Do you remember anything exciting occurring at that time?

DN: Yes, absolutely. There were some serious confrontations about the secondary waiver process. More importantly, when the state decided to deny all the waivers, then the issue became, how fast do they have to build a secondary plant? EPA and Ecology were very much involved in that. Of course, the individual entities were involved. There were some ugly confrontations. I vividly remember one meeting in which a number of the EPA people were at the table with their attorneys. One of our major cities, which had applied for a waiver and was denied, was there, the mayor and various other people. Of course, we were there. I remember the mayor of the city with his hands and his arms stiff on the table, leaning over nose-to-nose with the guy from EPA who was doing the same. They were screaming at each other—a really angry shouting match.

MM: And what were they yelling?

DN: It had to do with the time schedule, how fast it needed to happen.

MM: What was at issue with those schedules? Too stringent?

DN: The schedules, actually, for the most part, were fairly reasonable. What the cities really objected to was the EPA insisting that it all had to go through a consent decree process. That's an agreed-upon order in which both parties would agree—actually in this case all three parties, EPA, Ecology, and the Municipality would agree—and it had to be filed before the court. The decree had to have stipulated mandatory penalties if they violated it, big penalties, and that's the part that really drew the ire of the locals. If they missed a compliance date, if they missed a milestone, or if they violated the interim limits of the permit, they automatically got nailed, and they got nailed hard, and they had to waive

their right to all legal recourse. The time schedule itself, yes, that was controversial, but the real issue was those stipulated mandatory penalties. That's what the shouting was about.

MM: How did Metro's application for a waiver affect the other entities?

DN: Basically, they slowed everybody down. There were a number of entities that would not have opposed secondary, but when they saw Metro leading the charge to get waivers, they joined in. That set us back. There was a point in time when Metro was planning to put in something short of secondary. It was a chemical treatment process which cost a lot less, and they were trying to make an argument that it was actually better than secondary. There was some flimflam guy selling them some black boxes. So, that slowed the process down, too. But, by and large, Metro has been an incredible sewage entity. For many years they've been one of the premier sewage entities in the United States, wonderful technical staff, excellent operators. So, what can I say? They're good people.

There were a number of entities that would not have opposed secondary, but when they saw Metro leading the charge to get waivers, they joined in. That set us back

MM: After those issues had been ironed out and people began negotiating, where did the municipalities, including Metro, stand in terms of their waiver applications? I'm talking about the point at which you had the assistant AG's opinion, and you had people negotiating compliance schedules to apply secondary treatment. How were those applications being handled?

DN: By that time, Metro was withdrawing its application. The handwriting was on the wall. Several of the other smaller cities in the area had already decided to go secondary, and they were in the construction process. Another big factor was that those who weren't getting on the bandwagon were losing out on money. There was a lot of grant money out there, and those who were slow in getting going were not going to be guaranteed funding.

MM: Do you remember where the grant money came from?

DN: Yes. It was the Centennial Clean Water Fund, which was enacted in 1986, I believe, and we still have it today. It's a cigarette tax—another law passed by the Legislature to place a tax on every pack of cigarettes, and that money goes into a fund. Initially the lion's share of that money went to the Clean Water Fund to assist communities in building treatment plants and other things. Today that same fund has been raided by other special interests. It goes to a lot of different things now, but part of it still is for water quality, and we do still do some wastewater plant work with it. By and large, our wastewater treatment plant assistance is now in the form of loans; however, from a different source.

MM: Did Metro lead the charge in terms of getting that funding? Did they lobby hard for it? How did that come together, do you recall?

DN: Once they saw the handwriting on the wall, and everyone decided to go secondary, it was kind of every man for himself. Prior to that, Metro essentially formed the team that fought secondary treatment. They were the leaders, and the other smaller cities coalesced around them. They formed a unified group that fought secondary treatment and, secondly,

Department of Ecology employees Helen Fox and Holly Francis with Centennial Fund grant applications, 1988.

applied for the 301h waivers. Once that strategy fell apart, and once they saw that the state wasn't going to back down, that secondary would be required, the communities were suddenly no longer allies, they were competitors, if you will. Everyone was scrambling to get money. Metro went directly to the state Legislature and got an unprecedented commitment for funds for over a period of 20 years, I believe it was to build the West Point secondary treatment plant. This money came out of our Centennial Clean Water Fund. It came right off the top. Everyone else in the state had to apply for the money and had to participate in a statewide competition every year for the highest priority projects to get funded, but Metro got their big block of money right off the top.

MM: Wasn't the Legislature under pressure to grant some kind of parity with these other municipalities?

DN: Well, if you look at it on a population basis, it probably was parity. Seattle is where the population center is, and that's where the taxes are paid, and that's where the Centennial Clean Water Fund, by and large, is funded. So, people from that area figured that they had it coming.

MM: Did you come to feel that secondary treatment was necessary?

DN: Well, initially I think none of us were too excited about it. As time has gone on, we've gotten much more sophisticated in the materials that we monitor for in the receiving waters, and in the biological studies. Now we can see that there are a lot of impacts happening out there, and of course, today, we have a myriad of materials being discharged in the sewer systems that weren't present back when the waiver process was going on. There's a lot of new material.

MM: For example?

DN: Thousands of toxic materials. Anything you can name—a lot of the medical hormones, trace materials like endocrine disruptors. It turns out these materials do the same thing for the hormonal system in fish and other animals that they are intended to do in people. So if, for example, when birth control medications are discharged, guess what it does to the fish?

MM: Not spawning, not producing?

DN: That's right, yeah, and so this is the kind of impact that we're seeing happen today. We didn't even know about these materials back in the days the waiver process was going on. The materials weren't even available or in use.

MM: Or at least not so prolific.

DN: Not so prolific, right. Of course, even household cleaners, and other common things were present early on, too, but the numbers of chemicals that are available to the public have just mushroomed in the past 20 years. There are thousands of things on the market now that were not then, and all of these things probably have an additive effect.

MM: I'm not sure the general public understands how permeable the world is—that if you clean your kitchen counter, how that cleaning solvent ends up in the environment eventually.

DN: Where else is it going to go? You dump it down the drain, the drain goes to the treatment plant, and the treatment plant process is not designed to remove that material.

MM: Would that involve tertiary treatment?

DN: Well, tertiary treatment is kind of a catchall. It's basically anything that's more advanced than secondary treatment, but there are many kinds of advanced treatments, which you can add on to secondary to do special things. There are processes you can do to remove nutrients, nitrogen and phosphorus. There are other processes you can do to remove biological organisms and bacteria to a much greater degree, using disinfection and high-tech filtration processes. There are coagulation and sedimentation processes to remove heavy metals that are in the water. These can probably all be called tertiary treatment, but they're all very different processes doing different things. To do all of these things, every possible kind of treatment, would be astronomically expensive.

Of course, the famous exception to everything is Victoria, B.C. They collect the sewage, grind it up, put some chlorine in it and discharge it. It's not even primary. It's nothing, basically ground-up sewage. That's the abysmal case.

MM: I want to ask you about something particular to the Northwest region, and that is, what's the nature of Canadian clean water laws and their regulatory practices regarding discharges, particularly to northern Puget Sound. How are their laws different from ours and how do those differences, if they exist, affect our waterways?

DN: I'm not really sure exactly what the Canadians require at this time, as I haven't worked with them for 15 years or so, but they used to decide what level of treatment was necessary on a case-by-case basis. It seemed that any plants discharging to their rivers required full secondary treatment, and if they discharged to the marine waters, maybe not. Of course, the famous exception to everything is Victoria, B.C. They collect the sewage, grind it up, put some chlorine in it and discharge it. It's not even primary. It's nothing, basically ground-up sewage. That's the abysmal case. I've been out to one of the beaches in Victoria where one of the big outfalls is located. They post it with warning signs so that people don't go on the beach, or don't collect the shellfish. So, they walk away from it, and that's not very good.

MM: I wonder why Victoria is a special case? Do you know the logic behind their treatment decisions?

DN: I don't know, to tell you the truth. Somehow they've always been treated a little differently from the mainland. I guess they claim that, well, there's all of these receiving

waters out there—the Strait of Juan de Fuca, and in northern Puget Sound—there's just so much receiving water, they apparently concluded it wasn't that big a deal.

MM: What other groups or entities were involved, outside of Ecology, in terms of weighing in on the quality of the discharges flowing into Puget Sound?

DN: We had the Puget Sound Water Quality Authority, which was established by the Legislature as a kind of watchdog group to watch over what all the state and local agencies were doing. They were set up to review everything that was going on. Earlier, you mentioned the involvement by NOAA. They did a whole series of scientific investigations, something similar to what Metro did. Their studies were called Puget Sound Protocols, which were a large series of studies to, first of all, develop techniques for measuring pollutants. Then they did a whole series of studies to evaluate pollutants in Puget Sound, very thorough, very well administered, scientific studies that ranged from oceanography to biology. The Puget Sound Water Quality Authority was set up to recommend how all of those findings would be implemented. So, they made a bunch of recommendations, came up with a big study and a big plan by which everyone was supposed to achieve the goals of that big series of studies. They didn't have any direct enforcement. They essentially would urge the various enforcement agencies and permittees to comply with the requirements. Puget Sound Water Quality Authority had a sunset provision, a clause written right into the law, setting a date when their funding would terminate and they would be abolished. But instead of sunsetting them, the Legislature reduced the size of the Authority and eventually combined it into Ecology under the new name Puget Sound Action Team. Now they're a piece of the Governor's Office.

MM: You said that NOAA conducted a range of scientific tests. Were their studies used by Ecology, and, if so, do you remember the significance of these studies?

DN: From my perspective, the studies were so extremely technical that even I had trouble understanding them. They were extremely voluminous and included a lot of scientific jargon. Personally, I didn't use them much, but some of the scientists in our agency were using them for things like designing models for modeling Puget Sound, which affected compliance standards and effluent discharge limitations. So, it was more of a basic science effort. Of course, over a period of time, it very much affected how we did business. Using their developed protocols on how to measure pollutants and how frequently we had to sample to get a reasonable idea of what was going on, and where we sampled and how we sampled sediments, for example, influenced some of our programs, like our sediment program. We now do sediment sampling around outfalls that follows the very protocols NOAA established.

MM: In regard to the studies NOAA did, were there any that involved flushing. I believe I read that, previous to some studies conducted by NOAA, it was thought that the ocean tides, which come in and out of Puget Sound, weren't doing the job of flushing the water with, how would you say it, the thoroughness that people had previously assumed, and that had an impact on expectations for dilution and other issues. Do you remember these studies?

DN: Yeah, that was the oceanography part. I mentioned NOAA did both oceanography and biological. What you're referring to is the physical oceanography where they study the physical shape and flushing characteristics of Puget Sound, and develop models, for example. Others were doing some pretty technical work on that when I was still back in

college, before I even started with PCC. NOAA refined that, and they found some things that were poorly understood previously. For example, they found that central Puget Sound flushes to the south rather than the north, and it goes around Bainbridge Island, and then back North from there. So, the path was rather different from what they had thought, and this extended the residence time of the average molecule of water in Puget Sound. So, yeah, they did some good work in refining the model, and the directions currents flow and so on.

MM: So, if Puget Sound doesn't flush in the manner you thought it did, if it was more limited in its flushing action, or what have you, the toxins you thought were heading out and being dispersed and diluted were actually hanging around a little longer?

DN: Right. And NOAA found some other things like, for example, in the deeper water, the bottom layers of water generate net flow to the south end of Puget Sound, and the surface water net flow is north, out of Puget Sound.

MM: Looking back at it now, and the work that you've done, and the work that the agency has done, what do you think the agency could have done differently in order to resolve issues such as this?

DN: Well, you know, even today we do not have a law that says secondary treatment is required. We have an Attorney General's opinion on a rather nebulous phrase, AKART. If the Legislature had originally come right out and said, secondary treatment is required, we would have avoided a lot of confusion and a lot of spinning of wheels, and probably a lot of expenditure of money. If the entities had built secondary plants from the get-go, rather than building a primary plant and then later having to expand it to secondary, there would have been a lot of funds saved. The basic problem, however, was that most of us in Ecology didn't feel that secondary treatment was needed, and ultimately, we were proved wrong. We felt pretty good about our stance at the time, but had we been a little more far looking and realized that, ultimately, we were going have to go to secondary, why didn't we just do it then? If we had, the transition to adding secondary would have been a lot smoother.

If the Legislature had originally come right out and said, secondary treatment is required, we would have avoided a lot of confusion and a lot of spinning of wheels, and probably a lot of expenditure of money.

A Matter of Opinion

An interview with Charles Lean
December 6, 2004

Lean

Position held at time of interview:

Formerly Washington State Assistant Attorney General, Ecology Division, 1969-1992. Currently in private practice

Education:

- Juris Doctorate, University of Washington School of Law, 1968
- Bachelor of Arts in Political Science, University of Washington, 1965

Maria McLeod: In relation to the Department of Ecology and state water pollution control, when did you join the Washington State Attorney General's Office and what were the main issues you worked on as an assistant Attorney General?

Chuck Lean: I started with the Washington State Attorney General's Office as an assistant attorney general in August of 1969, pre-Ecology. There were two people in the office, the division chief, Charlie Roe, who was my boss, and me. Back then, our division of the Attorney General's Office covered the Water Pollution Control Commission and the Department of Water Resources, with Charlie and me representing both of those agencies. Then, in 1970, Water Pollution Control Commission and the Department of Water Resources, along with some other state agencies, merged to form Ecology. At that time, the Ecology Division was formed within the Attorney General's Office, with responsibility for representing the Department of Ecology. I stayed with that division of the AG's office until I took an early retirement in '92. At that time, the legal work consisted of appeals or trying to get enforcement and compliance. About half of our work at that time, or maybe two-thirds of it, was with water resources. Later on, when more people joined the office, we divided up, but Charlie was the boss; so, where policy was being made, Charlie was making it. If the director of the Department of Ecology, the Governor's Office or somebody needed a lawyer who was involved in water pollution control, then it was Charlie Roe.

MM: In regard to Clean Water laws, both state and federal, were people coming to you, to your office, asking for opinions or interpretations of those laws?

CL: Sometimes they would, yes, but there were about three different ways that this could happen. They could ask for an Attorney General's formal opinion, which then became the written document that got filed as an official AGO, as they put it. Another thing that could happen would be that they would ask for a letter of opinion, or they could ask for an opinion that maybe an assistant AG would respond to in writing—either via letter or memo—that didn't advance to the status of any sort of formal opinion. Most of those were kept someplace in the agency files. Then, the third level would be that someone from the agency would simply pop his head in and ask, Chuck, what do you think the law is on this subject? That happened. In fact, it happened quite a bit, especially after I was with the AG's Office long enough, and the people at Ecology started to trust me.

Sometimes the feeling of Ecology staff was that the lawyers were calling the shots. Sometimes they were, and sometimes they weren't, most often there was collaboration between the lawyers and the agency, and where there were tough decisions, those might have been made at the Governor's Office.

MM: So, what were some of the water-quality issues when Ecology and your division of the Attorney General's Office and the Governor's Office were working together?

CL: The original issues were related to the pulp and paper mills, the big one being sulfite waste liquor. That's produced in the pulping process when they heat up the pulp and melt it down into a substance they can then send into a paper machine to make paper products. In doing this, they get a lot of excess liquid and acids, which they were dumping into the marine waters, straight. So the big question in the '60s, which was before I came, and before Ecology was formed, was whether or not the state could prove that the dumping of the sulfite waste liquor was hurting the marine waters. After I began working on these issues, I went out there to Northern Puget Sound and the Strait of Juan de Fuca on a float plane that was used to take samples. At that time, we had cases against ITT Rayonier and the Scott Paper Company, so I was having a look. In the area where we would land outside these mills, the water would have turned purple. That's a lot of water to have turned purple. We're talking millions of gallons that they'd dump out there in Everett Harbor and in Port Angeles Harbor. So, the fight was over whether or not you had to cure the waste liquor, and the only way to cure it, basically, was to put in a recovery boiler into which they dumped all this liquid, add combustible material, and burn it. That would then stop the sulfite waste liquor, but it cost multi-millions of dollars. So, the fight started out as to whether or not the state could prove that this was hurting the marine environment. The harm, if it was coming at all, and I think it was, was coming at the larval stages of things like oysters and clams and shrimp. However, the proof that the larvae were being killed or mutated, the science behind that, was really difficult. They were starting to prove it when the Legislature finally changed the law at the state level.

So, the fight was over whether or not you had to cure the waste liquor, and the only way to cure it, basically, was to put in a recovery boiler into which they dumped all this liquid, add combustible material, and burn it. That would then stop the sulfite waste liquor, but it cost multi-millions of dollars.

MM: And how was the law changed?

CL: Basically, they went from looking at what happens out in the water to what they termed technology-based treatment. That's where you hear the term "all known available and reasonable treatment," or AKART. That is, every discharger is required to implement the best reasonably available treatment technology, regardless of what is happening in the waters receiving the discharge. If you look at the water after the discharger has applied AKART, it's to see if the practices being used were still hurting that environment or if you've met the water-quality standards. Ecology had, and still has, a water-quality standard that basically says, don't discharge toxics in toxic amounts, and to apply that standard you must examine what's happening in the receiving water. But that's a backstop to the

technology-based requirement, AKART. First a discharger has to apply the best reasonably available treatment technology. If after that, they're still not meeting water-quality standards, then they add advanced treatment measures.

MM: So, when did secondary treatment begin for industries? I ask because it sounds as if you were still working on getting some form of primary treatment applied in the late '60s and early '70s.

CL: Secondary was the next issue after that for the industries. If we're talking late '60s, early '70s, the issue was sulfite waste liquor, and we were looking at 80 to 85 percent removal of the liquor. That liquor removal requirement was written into the permits in 1969 and 1970, and appeals were filed by Scott Paper and ITT Rayonier. But that issue, to me, is where the first policy decision was made to stick with this technology-based treatment.

MM: How does the appeal end up at the Attorney General's Office? Is that where the industry goes first when they object to the regulations dictated in the permit?

CL: No, to appeal a decision of the agency, they would, in the early days, go to a hearing examiner set by the agency. Later, when Ecology was formed, the law was changed to create the first Pollution Control Hearings Board, which is a separate agency from Ecology that is appointed by the Governor's Office. They take the place of the interagency appeal. They make a decision; then, after that, if the people still want to appeal, they can appeal to court.

MM: So, how did the Scott Paper Company appeal end up in your hands?

CL: When there is an appeal, there has to be a hearing before the hearing examiner, and then somebody presents Ecology's case. That's how I got involved. I got assigned to present the case, but Ecology had already made up its mind what it was going to do before I got involved. I'm pretty sure they had already met with my boss, Charlie Roe. Charlie and the Governor's Office were involved in all those decisions, and I think that they were also involved with the issue of Seattle Metro and the other wastewater treatment facilities.

MM: In the issue of wastewater treatment facilities, what was your role?

CL: In the issue of secondary treatment, my role with Seattle Metro and the other municipalities was similar to that of the pulp mills. Ecology had made a decision as to what it was going to do—put out an order—and then that was appealed to the Pollution Control Hearings Board. Then Ecology would have a lawyer that represented them in the appeal process, and the person who handled the first round of those cases from our office was another Assistant Attorney General, Leslie Nellermoe. I did the second round of hearings.

MM: So their appeal was because Ecology had said, you're going to have to add secondary treatment to these wastewater treatment centers in your cities, and they said—

CL: Ecology believed that the law required it.

MM: And what law were they referring to?

CL: They were looking at a mixture of state and federal law—mostly state—they used to call it cooperative federalism. The federal Clean Water Act was passed in 1972, which set criteria to be met by state water pollution control programs. If state water pollution control

law met these criteria, then the state would undertake the regulation, under federal oversight. Otherwise, the EPA would manage water pollution control within the state. Our state's program was one of the first approved under the Clean Water Act where there would be a federal bill passed, which they did in 1972 when they passed the amendments to the Federal Water Pollution Control Act, which later became the Clean Water Act. A few years earlier, as I was describing, the state had moved to a technology-based standard, which meant seeing what engineering could provide, and then requiring that. I believe all known available and reasonable treatment first showed up in the 1967 amendment to the state's water pollution control laws.

MM: So that was Charlie Roe's phrasing, "all known available and reasonable treatment"?

CL: Either that, or he picked up an innocuous phrase that was in the bill before and made it mean something, but he wasn't making policy by himself. At that time, during the first years of the agency, Governor Evans and his chief of staff, Jim Dolliver, were in office. Charlie Roe, even though he was in the AG's Office, was one of their lead environmental advisors, but then they also had the director of the agency, John Biggs. I don't know who was the most influential, or anything like that, because I wasn't there. I know I wasn't influential because, at that time, I was a little baby assistant Attorney General. I had just started.

MM: How old were you at the time when you started?

CL: I was 27. I wasn't making multi-million dollar decisions. I might work on cases that involved multi-million dollars, but I was defending decisions made by others.

MM: I came across a state law, which mentions secondary treatment. That's the 1971 State Water Resource Act, RCW 90.54.020, Section 3B. I don't know if Charlie Roe wrote this, but I wanted to read it to you and see if you find it familiar. It states, "Waters of the state shall be of high quality. Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for entry into said waters shall be provided with all known available and reasonable treatment prior to entry. Notwithstanding, the standards of quality established for the waters of the state should not be violated. Wastes and other materials and substances shall not be allowed to enter such waters which will reduce the existing quality thereof, except in those situations where it is clear that overriding considerations of the public interest will be served." Is this the basis of the decision, the part of the law that the state used in pushing for secondary treatment?

CL: Actually, that language shows up in a couple of other bills. One of them was the 1971 Pollution Disclosure Act, RCW 90.48.500, which specifically addresses wastewater treatment facilities. There are actually two concepts in what you just read me: One is AKART, and the second is a non-degradation policy. That's what the overriding considerations of public interest apply to, but not necessarily AKART. The technological standard applies first; if the application of that standard will still lead to degradation of the receiving waters, then the discharge may still be prohibited unless there are overriding considerations of public interest.

MM: You mentioned that AKART had been on the books since, you believe, 1967. But then it's some time before it's put to the test, and that test begins with the municipalities, correct?

CL: Well, in 1983 there was an Attorney General's Opinion, which is a formal document that comes out of the AG's Office. And all of this rotates around Seattle Metro because they were the leading marine waiver candidate, which would have exempted them from having to add secondary treatment. In response to this case, a request came in by the director of the Department of Ecology. Ecology wanted to know, if the feds proposed to grant a marine waiver pursuant to federal law, does the Department of Ecology have the power, under state law, to refuse to concur. Concurrence by the state was necessary. Did they have power to refuse to concur on the grounds of state law that might be interpreted as being more stringent then federal law? In other words, if state law requires secondary treatment, can they reverse a marine waiver by the feds? The answer was yes, because that's the way the Federal Water Pollution Control Act is set up. If there's a more stringent state requirement, then they can require that in addition to the federal requirements.

Ecology wanted to know, if the feds proposed to grant a marine waiver pursuant to federal law, does the Department of Ecology have the power, under state law, to refuse to concur.

MM: So, who wrote that opinion?

CL: This opinion was written by Charlie Roe. But there's one punch line to this. I believe you wanted to ask me if state law requires secondary treatment?

MM: Yes, that was my next question.

CL: Well, the AG's Office ducked it. They said that the whole question of whether it was required depended on whether it was an all known available and reasonable means of treatment in control, which they viewed as primarily an engineering question. It's not a legal issue. So, that's what the opinion says, basically the state has the power to be more stringent than the federal government. Whether secondary treatment is required is an engineering question to be resolved by Ecology.

MM: You mentioned that the Director of Ecology had posed the question to your office. By 1983, that was Don Moos, correct?

CL: Don Moos asked the question, and whether he was still with the agency when the question was answered, I'm not sure. In regard to whether or not the agency decided whether secondary treatment was required, it's actually in the final findings of fact conclusions of law and order out of the Pollution Control Hearings Board. It's the case that Leslie Nellermoe handled in 1984. As she handled it, and as I understand it, the state was going to turn down, or had turned down, these marine waivers, and that decision was appealed in the case of all of the cities involved, which included Bellingham, Port Townsend, Port Angeles, and Lynnwood.

MM: And did they come into the hearings board one by one?

CL: They were heard in a row, but they all came in pretty close together, and they involved a lot of the same issues. As it turned out, and this is entered into the cases in April of 1984, the Department of Ecology published a public document entitled, *State of Washington Policy and Strategy for Municipal Wastewater Management*, which announced the

agency's approach. Basically, in their approach, they ended up by saying that secondary treatment was required by state law. How long a time you had to put it in was, to some degree, still a bit in question. So, Leslie handled the first round of cases concerning whether or not secondary treatment could be required. Then, there was a second round of cases about whether the schedule was reasonable, and Ecology put out a group of orders that contained a schedule for reaching secondary treatment. The first round of cases said they can require secondary treatment, and the second round of cases concerned whether or not the schedule was reasonable. We eventually settled.

MM: And you dealt with those cases, those settlements?

CL: Yes, I dealt with the second round. Basically what happened was, we were negotiating or about done, but it was still up in the air and then the feds sued the cities because they hadn't met the requirements of their National Pollutant Discharge Elimination System permits, known as NPDES permits.

MM: And the NPDES permits are federal permits, which the states issue?

CL: The states issue them pursuant to state law, but they're required by federal law, and they're subject to a federal veto.

MM: And the federal law, in this case, in regard to treatment method, is different from state law. It's not so stringent, right?

CL: Well, the federal law leaves an opening for a marine waiver. Whether or not the feds issue one, whether that would have ended up any differently from where we ended up, I don't know. The feds filed suit because the NPDES permits weren't being met because we were still fighting about the schedule, and so the feds sued them. Once the U.S. Attorney's Office came in, then the cities were much more willing to settle, and so we settled all the cases in 1988.

Anyway, Ecology had made a decision. They had the Attorney General's opinion. Then they came out with the document, *the Municipal Wastewater Management,* that basically said, we're going to require secondary, here's how we approach it on an individual basis, and here's the standards and criteria that you use. Then they turned it over to the Ecology people in the Northwest and Southwest regions, where these cities were located. So it was two different regions of Ecology that were involved, and then they each had their water quality people write the report that then would come out in an order. The order could be appealed, and that was the second round of appeals, which I was involved in. We settled them all, but Seattle Metro was a little bit different.

MM: How so?

CL: Well, I'm not sure it was really different, but it was different in where the appeal went and that sort of thing. They were in King County Superior Court in Seattle. I believe that happened because we sued them.

MM: How did Ecology end up suing? Hadn't the feds sued them?

CL: Not yet, but they did eventually.

MM: Ecology filed suit first in the case of Metro? Why was that?

CL: Well, probably because we were looking for a court order. We weren't sure that we could ever enforce our own orders, because every time we tried, they'd appeal, so we were looking for a court order that reinforced ours.

MM: Was Ecology trying to set a precedence?

CL: Well, Metro was the biggest discharger by far, and so we were concerned that if they slipped too far, then all the others would use them as an excuse, and nothing would get done until Metro complied. So, we wanted to have a court order that the judge would have to deal with if Metro wanted to challenge it, rather than just coming back with new appeals over and over again.

MM: So, do you remember being in Superior Court in Seattle?

CL: I remember being in Superior Court, but we never went to trial. We were in Superior Court, we sued them, and then we reached an agreement with them about time schedules. There were some environmentalists in the lawsuit, and we had to convince them that the schedule was reasonable. There were a lot of meetings. I think that we went to court to tell the judge what we had agreed upon.

MM: Is this the way things normally pan out?

CL: I think that most of the big cases of all different descriptions get settled, whether it's water pollution, air pollution, or water rights. The monster cases tend to get settled.

MM: What are the monster cases, those that involve lots of money?

CL: Well, yeah, it could be lots of money. I don't remember what it cost Metro to put in secondary treatment at their West Point facility, but it was probably somewhere between $30 and $50 million. Some of the other cities were looking at amounts maybe not quite so big, but comparable. They didn't want to spend that kind of money, especially if they didn't feel it was a needed treatment—because the water didn't need it. Of course, that's one thing the first round of cases decided; you can't look at the water, you look at engineering only.

MM: What can engineers tell you?

CL: Well, the engineers can tell me what is all known and available—maybe not reasonable, that's really more of an economic test—whereas a biologist will tell me how much harm is being done. The problem is, it's almost impossible to tell what a pollutant does. I guess you could tell, in theory, what a pollutant does when it goes into marine waters, but to prove it, that's what was difficult. Yet, with a technologically-based standard, such as secondary treatment, everyone knows what it is and that it's possible to put it in. The question of whether or not it's needed is really a biological question, which we were trying to get away from.

MM: It seems that one of the issues was that wastewater treatment facilities discharging to fresh waters were already using secondary treatment. That wasn't a question for them, but for those discharging to marine waters. The laws were different because in 1977 Congress had added an amendment to the Federal Clean Water Act, 301h, which allowed an exemption from requiring secondary treatment for Public Owned Treatment Facilities

discharging to marine waters. Did that amendment provide incentive for municipalities to appeal Ecology's decision?

CL: Yes. When Congress passed the marine waiver, the EPA wasn't sure what to do with it. There was an amount of uncertainty floating around the area; so the cities decided to take advantage of it rather than sit down and open their checkbooks. They were arguing that problems with biological oxygen demand—BOD—had never been associated with their discharges to marine waters, but in any river you would see detrimental effects. If you take the oxygen out of a river, you're going to kill fish, there's no question about that.

When Congress passed the marine waiver, the EPA wasn't sure what to do with it. There was an amount of uncertainty floating around the area; so the cities decided to take advantage of it rather than sit down and open their checkbooks.

MM: And is it not true for marine waters because they're so vast?

CL: Yes. For example, take the Strait of Juan de Fuca. I have no idea how much water comes up and down that strait during each tidal cycle, but it's huge. Now, with sulfite waste liquor, there was so much of it being discharged, especially with pulp mills being all located in harbor areas, it was very evident they were a threat. What some of the cities were proposing was to put in a long diffuser that goes way out into the deeper waters. That way, you would have a whole mess of mixing water. Maybe they were right, that the secondary wasn't really required, but you don't want to force the agency to have to prove harm for each of the 500 different waste discharge permits; that would just never get done. You wanted to set the law up in such a way that you'd avoid those questions.

MM: I have here in my notes that the Federal Clean Water Act states that, "Publicly owned sewage treatment facilities must, at a minimum, meet effluent reductions by secondary treatment, except for sewage facilities discharging to coastal waters for which EPA has approved a waiver under Section 301h." Is this the language these municipalities were referring to as their defense?

CL: Yeah, partially, but the thing is that the EPA put out regulations on what municipalities had to show to get a waiver, but which was hard to show and expensive. I think Metro maybe could have done it.

MM: But they gave up the fight?

CL: They pushed it about as far as they could, until it became obvious that it wasn't going to work out. Then they settled. Once they gave it up, then if somebody actually had gone ahead and gotten a waiver from the feds, whether or not the state would have still made them do secondary, I don't know.

MM: Was Ecology in the position that they could have done that?

CL: Yes, because the state law seemed to say that regardless of what's happening in the receiving waters, you have to provide the all known available and reasonable treatment methods, and that would be secondary treatment.

MM: How is the state able to impose a law that is more stringent than what federal law declares?

CL: With almost all the environmental laws, you have a certain standard set by a federal law, which in Water Pollution Control is really complex. Any state that wants to run a comprehensive program has to come up with a program that meets this federal standard. Then they submit the program to EPA for approval. Technically, everything's happening under state law, because the state program issues the permits. Now, the section that says that you have to meet the criteria of federal law before they'll approve it also says that the states can be more stringent if they wish to be. As such, the state law can require more than federal law in the water quality area. There are some other areas in which the federal law basically preempts the whole field, and then what you have is what's required by federal law. In water quality, and in almost all the environmental areas—Air Quality, Solid Waste, Hazardous Waste—all those bills allow the state to be more stringent than the federal criteria if they wish to be. Even if one of our cities had obtained a marine waiver from the feds, if the state law tells them they must apply secondary, well then, that's the law they have to follow.

MM: When you were settling out of court, and when you were having these meetings, who were the people you were meeting with? What was your function, and what were they arguing for?

CL: Generally, we'd sit down and negotiate. At that point, I had been in conversations with the director of Ecology, who then was Andrea Riniker. From talking with her and also the Water Quality people—as well the deputy directors and on down the line—I had an idea of what our people wanted, where the soft areas were, what action had to be there. Then I'd sit in a room, where I would have with me maybe one or two staff people from Ecology. I'd be the lawyer spokesman. On the other side of the table there'd be a lawyer and a city utilities guy, usually, and then some consulting engineers. Eventually we got pretty well narrowed down on what the issues were, most of which were about time requirements. There were certain segments of the treatment—things like storm water bypasses, sludge handling, secondary technologies, and the like—that possibly some people were still fighting about whether to include, and, if they were in there, could they be stacked away at the end of all the rest of this. Then I'd sit down, and once we got to a point where I thought we were at agreement or close to it, I'd bring it back to Andrea Riniker, the director.

MM: At the point when the municipalities were appealing Ecology's decision to deny applications for marine waivers, do you recall any heated debates in front of the Legislature?

CL: Tim Douglas was the mayor of Bellingham at the time, and I always thought of him as being the leader in this group—he was certainly the most vocal.

MM: Do you remember the nature of his argument?

CL: That we were taking money from them and throwing it down a rat hole.

MM: Did attitudes change once it was known that grant money was going to become available?

CL: Yes, and I believe they began to feel that if they weren't going to win these lawsuits, what was the point in spending a bunch of money on lawyers if they were going to have to pay to put in secondary anyway?

MM: What about the time? Was pursuing the lawsuits on the part of the municipalities in any way advantageous in terms of buying time to make the necessary changes?

CL: Well, the first round of cases came about in 1984, then we ended up starting the second round, and that got settled in '88, but four years is actually pretty quick. It did give them more time to negotiate a schedule. Also, it would be interesting to look at the federal grants availability. I didn't ever deal with grants myself. I never knew what was available, but by the end of this process against the five cities, plus Metro, 85 or 90 percent of the money to do this was coming from either state pollution control law and issues or the cigarette tax or federal money. The combination of buying time and available funds meant that the cities still didn't have to pay all that money.

MM: Thanks for helping to clear up the legal issues regarding this topic. I do have one last question, which isn't necessarily specific to this issue, but still related. That is, what is the difference between policy and law?

CL: The law is something set out by the Legislature. You have legislation, you have regulations that are adopted by the Department of Ecology, and you have decisions by the courts. If you've got a U.S. Supreme Court decision that says you should or shouldn't do something, well that's law. Now, if you've got another issue like all known available and reasonable means of treatment control, you could say, well, the law requires that you don't think about water quality in this decision; you must think instead about the available technology. But even that being a given, there are still a number of decisions about reasonableness, timing, and how vigorous you are going to be about enforcing these requirements. Those are policy decisions. What are you supposed to decide? That's really up to the agency. I can tell them, well, here's what the law says, but it's their decision.

Why Wastewater Gets Special Treatment

An interview with Darrel Anderson
October 6, 2004


Anderson

Position held at time of interview:

Unit Supervisor, Environmental Assessment Program, Washington State Department of Ecology

(Employed by Ecology since 1972.)

Education:

Associate of Arts in Salmon Biology, Peninsula Community College, 1972

Maria McLeod: Darrel, the subject of this chapter is the somewhat controversial application of secondary treatment, the process of adding what was, in the mid-'80s, more advanced water treatment technology to those publicly owned treatment works, wastewater treatment facilities, that were still lacking it. Because you were working on water-quality issues in the early '70s, I wondered if you could offer some historical perspective, regarding the state of water treatment practices around the time of the Federal Clean Water Act of '72, the same year, incidentally, that you had joined Ecology?

Darrel Anderson: From what I can remember, this state was a leader in recognizing the importance of municipal wastewater treatment, which is domestic waste. I think our early legislative efforts in public policy were mainly concerned with human health effects of waste, and even some of the effects that waste could have on water quality, although it was a very basic understanding of the effects of domestic wastewater on the environment. I know that the state recognized what England had done early on, regarding the effects on human health in treating wastewater. Disease, mainly, was the big concern in developing public policy about wastewater treatment. So, many of our cities, especially the inland cities discharging to freshwater, already had at least primary treatment, primarily settling the solids from the liquids, and then disinfecting, killing off harmful bacteria or viruses in the final effluent that flowed into the receiving water, fresh or marine waters.

MM: I know primary treatment is, as you said, separating the solids from the liquids, but when you talk about disinfecting, what is that process?

DA: In those days it was chlorine. That was the only technology for any disinfection. Although, even in Puget Sound, I don't think everyone was doing disinfection.

MM: You mentioned England had been progressive with their wastewater treatment, and that the state of Washington modeled some things after what England had done, correct?

DA: That's generally the history, because England had, even in Victorian days, built huge sewers out of brick to transport wastewater out of the city, off the streets and into the river systems. They realized that was good for human health, perhaps, but not really good for the

river environment. So, I think they had looked at what we call primary treatment today, trying to deal with the problem of fish kills and smelly, icky rivers.

MM: If primary treatment is used to solve some environmental problems, what is the difference between primary and secondary treatment of wastewaters? Also, if secondary treatment is not applied, what is the negative effect, chemically and biologically, in terms of what is discharged to receiving waters?

The problem with waste that has only received primary treatment is that it allows too much untreated waste into the receiving water, which reduces or removes the dissolved oxygen necessary to support aquatic life.

DA: First of all, primary treatment isn't really an attempt to remove the impact of dissolved oxygen in the receiving waters, the marine water or fresh water, rivers, streams and lakes. The problem with waste that has only received primary treatment is that it allows too much untreated waste into the receiving water, which reduces or removes the dissolved oxygen necessary to support aquatic life. In fact, as I explained before, you just try to separate the liquids and solids and disinfect the liquid component that's going into the receiving environment. Secondary treatment really takes that process another step by attempting to use high populations of bacteria that consume the waste material in the water. In other words, instead of the receiving environment doing that on its own, naturally, we try to speed up that process in the wastewater treatment plant by adding oxygen. It's a very complex process, but essentially, and very basically, it removes that dissolved oxygen impact to the river, or in the treatment facility, by cultivating bacteria in very high populations and letting them munch away on the wastewater—the solids or other pollutants that are in those tanks. There are many different configurations and ways to do that.

Secondary Treatment Trickling Filter, City of Port Angeles.

MM: If there had not been, up until this day and this time, secondary treatment, if secondary treatment had never been applied in the mid-'80s, what would Puget Sound and the waterways of Washington look like now?

DA: It would be a pretty sorry, pretty bad environment, both for humans and aquatic inhabitants. Without dissolved oxygen, there'd be large stretches of dead river systems. There'd be large portions of some of our embayments in Puget Sound that would be devoid of fish and shellfish, because there'd be no dissolved oxygen due to all that consuming waste out there, taking oxygen out of the water. That's something we're seeing now in Puget Sound's Hood Canal where DO, that's dissolved oxygen, is being depleted, and the organisms that depend on that for life are dying off or moving away. So, without secondary treatment, this would be happening all over the state.

Without dissolved oxygen, there'd be large stretches of dead river systems. There'd be large portions of some of our embayments in Puget Sound that would be devoid of fish and shellfish, because there'd be no dissolved oxygen due to all that consuming waste out there, taking oxygen out of the water.

MM: What, especially at the time you began working for Ecology, in the early '70s, was the attitude of industries or municipalities in terms of what they felt they could discharge, especially to Puget Sound?

DA: I think that, for the most part, they felt that it really didn't matter. How much they discharged, or the quality of the discharge, was, as they believed, going to be taken care of in this huge marine ocean environment. The attitude was, it's just so huge, and there's so much dilution, it won't be a problem. Politically, that was the thinking in those days. Of course, those of us who knew better, thought that was a bad idea, even if there wasn't a federal or state mandate for secondary treatment.

MM: What is the old saying, "dilution is the solution"?

DA: "Dilution is the solution to pollution," which is not necessarily true.

MM: Why is that not true?

DA: Because that doesn't apply to all contaminants. If they're toxics or metals, they're going to end up accumulating in the environment, like we're seeing today. You really want to monitor the environment, and you want to minimize the releases to the environment.

MM: Why was the phrase "all known available and reasonable treatment methods," as included in the State Clean Water Act, problematic in terms of interpretation and application?

DA: There were a lot of different treatment methods, and we have a lot of different receiving water environments in this state: marine water, freshwater, different sizes of rivers. Just application of that on a case-by-case basis was a challenge because, in a political environment, some people wouldn't think it was reasonable to have that broad application for everybody.

MM: What would you name as the primary reason that secondary treatment became necessary, or part of AKART—all known available and reasonable treatment—in 1984?

DA: Ecology, as well as some legislators and citizens were concerned about the effects of dissolved oxygen on the receiving waters. It was a huge issue with growing populations, where we were experiencing increased discharge of wastewaters. We needed to do something, and we needed to be fair and consistent.

MM: Why then, up until that time, had the state allowed exemptions, granting marine waivers for applying secondary treatment to municipal wastewater treatment facilities discharging to marine waters?

DA: It was part of the federal program, national municipal strategy. The door was open in the federal program, and we allowed for marine waivers in this state for awhile. For some of our coastal communities, we went through a process of listening to that argument, and then, after a time, politically, the door closed. I wasn't involved in that detail of the discussion; I was more involved on the actual side of enforcing secondary treatment, making sure the facilities got on a schedule—a federal schedule or state schedule. After that decision was made, however, there was still resistance when the state closed the door on even considering a waiver option. For us, it meant a lot of work at the Northwest and Southwest Regional Offices because of all the marine water discharges we had to get on schedule. The Eastern Washington regions had less to do, because they only had freshwater discharges that were already at secondary treatment.

MM: What kind of resistance did you experience as the enforcer?

DA: It was along the lines of, "You guys are wrong and we can discharge because there's lots of dilution, and, by the way, if Victoria, B.C., only uses primary treatment, why are we being asked to add more?" Port Townsend and Port Angeles, and even Sequim, are right next door to Victoria. So, for a time, that was the argument. We got by that eventually, and after those communities began secondary treatment, their attitude shifted to, "why isn't Victoria using secondary treatment, too?" That became a high-level state department issue, which continues today.

MM: Referendum 26 provided state money to upgrade publicly owned treatment works—basically municipal treatment facilities—and to upgrade existing facilities or to build new ones, which would include secondary treatment, and require municipal waste discharges to obtain permits through the Department of Ecology. So, considering Referendum 26, which came about in '72, and other available forms of funding, why did implementation and enforceable requirements of the Federal Water Pollution Control Act hinge upon the availability of grant money?

DA: It's a reality—how expensive it can be to comply with federal and state law. There was recognition in Congress and here in Washington state that there would have to be funding assistance to help these communities, large and small communities, plan design, construct, and operate these wastewater facilities. So, therein lies a politically huge issue over the many years it could take, and who got the money first. The heavies, like Seattle Metro or Spokane and others, had a lot of political clout, and they were able to suck away a lot of money, rightly or wrongly, to do what they needed to do to build secondary treatment.

MM: And wasn't Seattle Metro the first one to approach the Legislature and lead the brigade, the first to obtain funding there?

DA: Yes, they did.

MM: In regard to the Southwest region where you were at the time, how did the availabilities of state funding, the grants that became available, particularly the Centennial Grant Fund, impact the work that you were able to do in the Southwest region?

DA: Well, it became obvious that a lot of money was being siphoned off to the larger municipalities, but maybe the argument could be that a large chunk of the money was needed to get compliance going. I don't argue that. That's probably reasonable, but it meant that we had continuing problems getting funding for the other communities in the state, especially at Southwest. Our schedules were changed as time went by due to the availability of money, and the priorities that we set for who we were going to fund with state and federal money. There's only so much to go around each year.

MM: You had mentioned earlier that at some point in the fall of 1984, the state closed the door and said, we're no longer going to give out waivers. Did that mean that these municipalities immediately had to apply secondary treatment, no matter what their financial situation was?

Grants did not cover 100 percent of the costs; so, you can imagine the municipality, having to raise rates to bring their own portion of the money to the pie. So that was a huge battle at the local level to increase sewer rates, which, typically in those days, were always very, very low, and then all of a sudden they had to pay for a multi-million dollar wastewater facility.

DA: In theory, yes. If you were to look at the way we applied our enforcement, it didn't really speak to whether these facilities had money or not, but in reality, when we built schedules, that's really what we were doing. Then, over a period of time and in most cases, we changed the schedules based on whatever was happening in the real world with the availability of money, or whatever it might be. That's what it came down to, but when we wrote a permit, or when we created a compliance schedule, we didn't speak to money as a reason or the excuse that you couldn't comply. Grants did not cover 100 percent of the costs; so, you can imagine the municipality, having to raise rates to bring their own portion of the money to the pie. So that was a huge battle at the local level to increase sewer rates, which, typically in those days, were always very, very low, and then all of a sudden they had to pay for a multi-million dollar wastewater facility.

MM: Is that something citizens would have to vote for?

DA: Sure, sometimes. Sometimes councils would adopt a rate schedule, a new rate schedule, and then that was matched with federal and state money, to apply toward doing the planning and design. Then they could apply for construction money. It came in phases. So, it was a pretty huge program, and a lot of good work was done by a lot of people in Ecology and throughout the state, administering the program and working through the enforcement, the

permitting, and the financial assistance. That history is lost to a lot of people who weren't with Ecology at that time, but it's hugely significant that this state got secondary or advanced treatment constructed.

MM: What is the difference in terms of receiving waters, such as freshwater versus saltwater? What's the difference in the quantity and quality of those receiving waters, and what they can take on in terms of pollutants?

DA: Well, certainly freshwater, in most all cases, is flowing water; so the amount of water going through that system can vary as to what its capability is in terms of receiving a waste discharge. In marine water, usually it's chemically different and has more capability, in some ways, to accept pollutants, depending on, of course, where it's discharged. If you have a poorly flushing estuary, then you have a build up of oxygen-depleting waste, which will cause a DO problem. If the discharge is in an area of high flow, high dilution, and high tidal effect, some pollutants would just disappear. I mean, you wouldn't even know they were there, even in large volumes.

MM: Given the different geography in the state, and the different waterways, how does that geographic diversity impact the way in which the state adapts federal regulations? In terms of authority, what's the purview of the Department of Ecology versus the EPA? How much leeway does Ecology have in the interpretation and application of federal clean water laws?

DA: That's a huge question. Sometimes it depends on a particular issue, or even a particular permit, in terms of how we may take the Federal Clean Water Act and actually develop our own policies based on the environment here in this state, both the political and actual natural environment. Those were always ongoing discussions and challenges we had with EPA Region 10, and it still goes on today, about a particular permit or a particular issue concerning our water-quality standards, which is never ending. That's the work that continues all the time, and the new twist now, of course, is the TMDL program, Total Maximum Daily Load.

MM: What's the TMDL program?

DA: Some people call it "Too Many Damn Lawyers." Actually, we're doing specific research studies in different watersheds. Where there's a pollutant-specific, or a series of pollutant-specific problems identified in our water-quality standards—impaired waters—we go back and do special studies, in-depth studies, to determine the cause and then come up with solutions to fix the problem.

MM: And Total Maximum Daily Load, that's the load of pollutants and how much a watershed will tolerate before you have impairment?

DA: Yes, under the most critical conditions.

MM: Getting back to the issue of secondary treatment, what effect did environmental groups have on the effort?

DA: They've had a hugely positive impact by giving us support. Legislatively, they applied pressure, and, in some cases, even lawsuits. They were advocates and played an important role in helping us do our job, because we're here at the direction of the Legislature and the governor, and so we had limitations then, sometimes even today, about how far we could

go, what we think could do or should do. So they played an important role, at least from the grassroots-citizen point of view about what we should be doing to protect ourselves and the environment.

MM: What function have these lawsuits served, and what kind of lawsuits have come about in terms of water-quality issues?

DA: I think the biggest impacts are from third-party lawsuits. That is, rather than Ecology and perhaps a city enjoined in some sort of an enforcement action or lawsuit, there's the ability for a third party to get involved to advocate for one side or the other. So, if they're advocating an environmental change or a project that needs to happen, they can enjoin and provide their arguments for that case, which is important at the legislative level, in regard to lobbying efforts or actually active lawsuits. Third parties can actually be very effective in making change happen a lot sooner, in some cases, than we could ever do, and they could provide their own money and expertise.

MM: Do you remember any specific cases in terms of water quality?

DA: I think the biggest one is this whole suit was the one brought against EPA about the TMDL Program that was not being implemented in this state, by the way. It should have been, but we never really took it on as a program until the lawsuit occurred in the early '90s. That meant that Washington really needed to develop a TMDL Program to fulfill its responsibility under the Clean Water Act. There were related lawsuits in other states, too. Unfortunately, that's the political reality of what happened, and we should have been doing it as a comprehensive program anyway; but, you know, as an agency, we just never embarked on it because of political issues going on, and the cost of the programs.

MM: It sounds like a comprehensive TMDL Program would include a lot more monitoring, a lot more people to do the monitoring.

DA: Yes.

MM: And then, when you mention the political realm, are you referring to the TMDL Program's impact on industry?

DA: I'm referring to permitted dischargers in general, and especially the nonpoint world, which is where the majority of our problems are today, nonpoint sources. Nonpoint pollution are diffused sources that, in most cases, travel overland to surface water. The aim of the TMDL Program is to serve as a mechanism to get at the issues that we've had so much problem getting our arms around, such as the storm water program and the nonpoint program, which mostly affects the agricultural and forest harvest industry. This is a new tool to get at these problems in a larger comprehensive way, considering the entire watershed, rather than one source at a time. We're talking multiyear studies from the beginning to the end, three years, sometimes two, or even four, depending on the size of the project.

MM: In regard the TMDL Program and the issue of not only what goes into the waters, but what stays in the environment, such as the metals you mentioned as accumulating in the environment instead of diluting and breaking down, I wonder if you foresee an era in which the application of advanced treatment methods becomes the required standard, similar to the way in which secondary treatment became required?

DA: In today's world, there's a lot of different technologies you can use for trying to solve a problem, and really what drives that discussion these days is the TMDL Program. This is because you're applying, as we discussed earlier, a cumulative pollutant load/limit for a particular parameter or parameters in a watershed, which means that if you have 20 dischargers in that watershed—that's the Puyallup Watershed, 20 to 21 industrial/municipal dischargers—they are all assigned a limit. When you add it all up, it can't be more than a total load assigned by the TMDL. So, for a particular parameter—dissolved oxygen or it might be bacteria, a metal, or a nutrient like phosphorus—all dischargers must have a specific permit limit. So, as you can see, all these dischargers are going to look at what technology they may need to apply in order to achieve the particular assigned limit for them within the many different parameters, and it may not be the same for each discharger.

MM: As you're speaking, I realize that science is always in the process of discovering the ill effects of various pollutants, particularly those that accumulate. As a result, these discoveries become part of the regulations in terms of what are considered acceptable and unacceptable discharge levels, and that will have impact on the TMDL program.

DA: Yeah. Once you establish a TMDL for a watershed, that's really the tool you use to manage all the pollutants of concern in that watershed, which may vary from watershed to watershed, forever.

MM: What are your personal and professional concerns in terms of the quality of the waterways in the state of Washington? As you look out into the future, what do you think is going to happen, or what could happen in terms of water quality?

DA: I think that we've done a pretty good job by putting a handle on the conventional pollutants such as pH, DO and nutrients, but the real concerns come from what we are starting to learn about persistent bioaccumulative toxins, the effect of, for example, hormones and all the medications people are taking now that could pass through to the wastewater treatment plants. Hormone replacement drugs are a big one.

MM: Estrogen?

DA: Estrogen, synthetic estrogens everywhere. Of course, England was a leader in looking at this issue in their water, and now this issue has been spread beyond England, of course, to other modern countries.

MM: It's not something everyone thinks about, that whatever we put in our bodies ends up in what we drink.

DA: Or in the ground water, surface or ground water. I think that there's a lot to be done to educate the people about the connections between ground water and surface water.

MM: What would you tell somebody about the connection between ground water and surface water?

DA: Well, in most cases, there's a connection between the groundwater and the surface water. There are some cases where groundwater is not connected to surface water because it's confined, but in most cases there's a connection. It falls on the ground, it goes into the

ground, and it migrates to a surface water source somewhere, whether it is marine or fresh water.

Now we have an air deposition issue, which consists of pollutants that are transported in the atmosphere, in the air, and throughout the planet, which get deposited through either snow or rain into these watersheds. The more we look, the more we understand, especially from the impact of air deposition from developing countries.

We can build more and more of these facilities, and bigger facilities, but eventually we'll reach a point where these facilities won't be able to discharge, because they'll be exceeding their loading limit for the watershed. So, you do reach a point where you have to say, enough is enough, even though the population is still growing.

MM: Where's that deposition coming from?

DA: From Asia. A lot of the mercury deposition we're seeing in our watersheds is from Asia, especially up in the snowfields. We're worried about the negative effects of mercury and other chemicals, to be sure. Certainly the issue of population growth remains, and that's probably the single biggest impact on our environment, even though we may have more advanced wastewater treatment. We can build more and more of these facilities, and bigger facilities, but eventually we'll reach a point where these facilities won't be able to discharge, because they'll be exceeding their loading limit for the watershed. So, you do reach a point where you have to say, enough is enough, even though the population is still growing.

MM: One last question, looking back at it now, hindsight being 20-20, is there anything the agency could have or should have done differently in order to resolve these issues we've discussed?

DA: I think the single biggest issue I've experienced, over my 30 years with Ecology, is the pressure of the political moment and the agency's need, when addressing environmental issues, to try to keep in mind the future generations of people who now live in this state. Also, to remember how important these programs are in protecting—not for the profit of a particular person or industry—the population as a whole. That's really the challenge, to stay at that higher level and keep that at the forefront of every discussion we have. Also, it is incumbent on each employee who does environmental work to be an educator every time they talk to somebody about those bigger issues. That's the hindsight. All that said, I still think we've done a great job, and it's an important story to tell.

At the End of the Pipe

An interview with Nancy Kmet
September 30, 2004


Kmet

Position held at time of interview:

Unit Supervisor, Industrial Section, Solid Waste & Financial Assistance Program, Washington State Department of Ecology, since 1984

Education:

- Master of Science in Civil Environmental Engineering, University of Wisconsin, Madison, 1983
- Bachelor of Science in Bacteriology, University of Wisconsin, Madison, 1975

Maria McLeod: I have a 20-page document in my hands, which you wrote for Department of Ecology in 1984, 20 years ago when you were still brand new to the agency. The title of that report is an "Overview of Wastewater Treatment Utility Operations." What can you tell me, in terms of wastewater treatment, about the significance of this document?

Nancy Kmet: That report was done as part of the National Municipal Policy Strategy, which was a federal initiative to bring wastewater treatment facilities into compliance with the 1977 Clean Water Act, and implement secondary treatment for those who were yet without it. When I began at Ecology, treatment facilities had applied for and were being considered for marine water waivers, which allowed them extensions in terms of adding secondary treatment. So, during that first year I worked for Ecology, as part of my job duties, I conducted a statewide survey of where municipalities stood in terms of wastewater treatment options. There had never been anything put together, at that point, about what was out there.

I remember, in particular, on a trip to Mount Vernon in Skagit County, going to the City Hall, which was one of the workshops we conducted around the state. For that, I wrote the document you have in your hands, about wastewater operations, together with Dave Jansen. For that meeting, we met with invited public works directors and other city officials. We basically outlined the Municipal Compliance Strategy.

MM: In terms of treatment options, can you describe primary and secondary treatment, and give me a sense of the status of most facilities at that time?

NK: Most of the facilities were using secondary treatment, but there was the issue [loophole] of the marine waiver for secondary treatment, for those discharging to marine waters, so some of those facilities were still only doing primary treatment. Primary treatment is a process where wastewater comes into a chamber, the heavy stuff settles to the bottom, and the rest goes over a weir to the next treatment facility. The heavy stuff is the primary sludge. That's generally treated in an anaerobic digester, which is another big tank that has no air, and so it's called an anaerobic condition, which means no oxygen. The anaerobic organisms chew up organic compounds and produce methane, and all this sludge

is produced, which is fairly highly treated. Most pathogens are killed because the conditions are not favorable for growth. The wastewater, which has been separated from the sludge, goes over the weir and would then typically go to secondary treatment. Secondary treatment is where you have active biological growth going on in an aerobic environment with oxygen. And, at the time when I started, the secondary treatment was what was missing in a lot of communities that were discharging into the marine environment.

MM: In regard to the issue of different requirements for facilities discharging to marine waters versus discharge to fresh water, which you mentioned, I've read that prior to 1977, facilities could discharge only using primary treatment if discharging to marine water, but those discharging to freshwater had to impose secondary treatment as well. I'm assuming that the rules regarding marine waters weren't so stringent because marine waters are larger, and the thought was that the discharges would be disbursed, that dilution was the solution? Is that correct?

NK: That was pretty much the assumption at the time.

MM: Can you give me some background regarding how the extensions were distributed?

NK: The Clean Water Act of 1977 granted us authority to give case-by-case extensions to municipalities, or publicly owned treatment works, POTWs, that weren't in compliance with the 1977 deadline for secondary treatment. So, when I came on board to Ecology, there was consideration for granting the waivers, and there was a lot of discussion about not granting them. EPA was making the final decision, but we also had some state authorities involved. So, there was both the marine waiver program, and the state authorities for wastewater discharges. A big part of that state authority was Chapter 90.48, our Water Pollution Control Law. Included in that law is a statement that dischargers must treat their wastewaters, and they must provide all known, available, and reasonable treatment technologies. This is known as AKART. The law includes a little bit about pollution prevention here and there in the law as well. So, you could think of our Water Pollution Control law as a little more stringent than the federal requirements and their allowance for marine waiver. AKART means that if it's reasonable, which basically means not too costly, and it's available, meaning it's used widely across the country and state, the discharger needs to provide it.

So, in that time period when I joined Ecology and was working on the Municipal Strategy, we were developing the position that secondary treatment was AKART and marine waiver or no marine waiver, under state authorities, municipalities would be required to provide secondary treatment, regardless. So, there was all this controversy.

MM: It sounds as if what determined AKART could be subject to interpretation. Did that contribute to the controversy?

NK: It could have, but there were enough municipalities treating wastewater with secondary treatment for it to be considered known and available. The big part of the discussions we had with municipalities in those workshops was more often about the cost of treatment. In reality, the cost per taxpayer, especially in large municipalities, was small and is certainly reasonable, and that was our argument. I remember, in some of those small municipalities at that time, comparing the costs of providing the ability to flush your toilet

and have a reasonable treatment as similar to the amount for cable TV. It was important, in those workshops, to provide people with something to compare and understand. So, our argument was that the ability to have clean water discharged into the environment should be given at least the same consideration as the ability to watch cable TV. I believe, in the end, that we were fairly effective in those discussions. Right after these workshops, I think they understood we were serious about this and were going to impose secondary treatment.

At the same time, the marine waiver issue was happening, Ecology and EPA finally came to an agreement, and EPA denied the marine waivers. I don't know all of the history there, but municipalities went to the Legislature for help and, basically, Metro was the leading force and got a grants program to give them state monies to provide for secondary treatment facilities. At that point, the controversy really kind of died because there was money there to provide secondary treatment.

MM: Was money at the heart of the controversy because building new facilities or updating the old facilities would result in such a large cost for the municipalities?

NK: Yes, because it was costing them money, and a lot of people really didn't understand what the need was. At that time, primary treatment had been used for years. The attitude was, this is what we're currently doing, so what's the big deal. So, that was part of the workshop, educating them about treatment.

MM: What were the negative effects of discharging waters that had only undergone primary treatment?

NK: With only primary treatment, a lot would be going out the end of the pipe, and there was concern at the time, and as well as today, about toxics that go into the environment. At the time, in regard to how those discharges were affecting marine life, there was apparently a beaching of some whales that happened, coincidentally, at the same time. Whether or not it had anything to do with the discharges, it certainly provided emphasis and impacted public opinion and generated outrage. Whether there's a connection to the whales dying, I don't know, but there certainly were identified toxins going into Puget Sound. So it helped to change public opinion, and certainly showed the Legislature and the Public Works officials that perhaps they weren't going to be able to fight this, and if they couldn't fight it, then they needed to get some money to update or build new treatment facilities.

So, maybe what we did had more of an impact than I thought at the time. I don't believe there are any facilities left without secondary treatment, but there were a few small ones that lagged behind for years. All the big ones went for grants, and they were constructed within at least five years of that.

MM: And when these municipalities went to the Legislature and asked for grant money and indeed received it, where were those monies coming from?

NK: I believe it was called the Centennial Grant Fund.

MM: What percent of the costs did the grants cover?

NK: Some of the earlier programs actually covered as much as 90 percent of the cost. Later programs were more along the lines of 50 to 55 percent.

MM: Did municipalities need to construct whole new facilities, or did they just add on to their existing facilities?

NK: Mostly it was add-ons. At the same time, there was growth happening in Puget Sound. Municipalities were addressing growth issues and even future growth. So, in some cases, they probably were even building new primary systems to accommodate growth.

MM: It sounds as if, in 1984-85, the state was experiencing high population growth, a new definition of AKART, finding better ways of measuring toxicants in Puget Sound—and all these forces were coming together at the same time.

NK: That's really what was happening.

MM: We haven't focused much on Metro's West Point facility, the main Seattle-area treatment facility, but you had mentioned that they were the first to appeal to the Legislature to get grant funding. What is your memory of the controversy around Metro?

NK: Well, Seattle and King County is the population center in this state. They have a lot of political clout, and they led the charge. There were other municipalities involved, all those marine waiver discharges. Tacoma was part of that, I believe. I don't recall them all, but all the ones around Metro, the suburbia-type communities, were applying for waivers. Again, the population base, that's where the votes are, and that's what the Legislature pays attention to.

MM: It sounds like Metro, or these other municipalities, looked down the pipe and saw, oh gosh, this is going to cost us x amount. We see this coming from Ecology. We don't have an option. We'd better get up and get those grant monies.

NK: Well, that's really what happened. They saw the writing on the wall, that they weren't going to get waivers. It wasn't really worth pursuing. They were getting lots of flack about even asking for waivers, and there was a big environmental push during those years. People were interested in the subject; so, it was this swirling mass of opinion, and that's how things happened in the process.

MM: I wanted to ask you again about the Municipal Problems Assessment. When you said that you actually went out to some of these municipalities, you got a lot of information from certain authorities within the municipalities, but in some situations, you were gathering information from Ecology's regional offices, too.

NK: When I was talking to the regional offices, I was talking with the people who were dealing with the individual municipalities. They had a wealth of information about what treatment plants were out there, what each of the different dischargers were doing. A lot of the information wasn't really well documented. Databases were just starting to get developed, and the computers we had at that point didn't have much memory. They were pretty slow, and nothing compared to today. These days, we enter all the pollutant discharge elimination numbers every month, but we also have general information on what the facility has for treatment, a whole wealth of information on each facility.

MM: And you were gathering information for about 280 municipalities in the state, correct?

NK: That's sounds right, but the part about finding out what was out there, that was really interesting, just to know what kind of treatment was being provided statewide. It wasn't always easy because a lot of it wasn't really well documented, like I said, and I had to talk to individual permit writers. In the end, the information I gathered wasn't used all that much because by that time, there was focus on grants, and I think the decisions had already been made that they were going to have to go to secondary treatment, so we didn't really have to force the issue. It was, ultimately people decided what they needed to do, and it happened. But it had been interesting to go out on inspections in the regions and see what was happening in these facilities.

MM: What drew you to go on some of these inspections, and were you just inspecting the water treatment facilities, or more? And if you did inspect more, how did that work? Did you follow pipes, or were you surveying the building or what?

NK: Well, we weren't doing inspections out in the collection system. That was more of a regional office's purview. Rather, we were visiting the wastewater treatment plants and looking at their operation and maintenance. As part of my job at the Southwest Regional Office, I was doing this more routinely. For compliance inspections, which was a little different from the Operation and Management piece, we did both job duties. So, we were working both operations and then compliance at the end of pipe. And, in some cases, we did look inside the collection system, because, as part of that job, the treatment plant may be where it all ends up, but in a collection system you also have pump stations, you have places where there could be overflow. So, there were lots of issues upstream that we also took care of, and there were some pump stations we inspected. During inspections we discovered situations where pump stations had overflows in high storm events, so that kind of work completed by Ecology staff was what led to all the focus on combined sewers and overflows that came down the road. It's been a federal initiative, but we were looking at that in the region, even in the region back then, because it resulted in raw sewage being discharged in the event of an upset at a pump station. So we looked at issues to make sure that they had back-up power sources, you know, had what they needed to provide treatment, or provide movement of sewage to where it needed to go to get treated.

During inspections we discovered situations where pump stations had overflows in high storm events, so that kind of work completed by Ecology staff was what led to all the focus on combined sewers and overflows that came down the road.

MM: But, you're saying that, wherever you have sewer systems, basically the waste is going to and collecting at a pump station. The pump station more or less regulates the flow, and then it goes on to a treatment center from there?

NK: In the Northwest we have lots of different topography. You may have your house on a hill and the water's going downhill, so you don't need a pump station—there's lots of gravity flow. But there are many cases where you have to pump wastewater over a hill, or up some grade, to get it to where it needs to go. It just depends on where you are, what kind of situation.

MM: Who is responsible, within a given municipality, for monitoring their wastewater treatment, and to make sure that they're up to code?

NK: Ecology issues NPDES permits for surface water discharges. NPDES is the National Pollutant Discharge Elimination System, and these permits include the standards that treatment facilities have to meet. They include limits, and then they include monitoring requirements. So, they have a standard limit. That's a federally defined program, which we've adopted into our own state regulation, which the municipalities can't exceed.

MM: What was the impact, if any, on industry in regard to bringing secondary treatment to municipalities?

NK: Well, industries had, and still have, a variety of options. When industries generate wastewater, often times they discharge to the municipal treatment system, and sometimes they can treat their wastewater and discharge it to surface water. If an industry does that, they are also required to get an NPDES Permit from Ecology. There are federally defined standards for industrial categories that apply to certain industries, and those are outlined in federal regulations. When we issue a permit, we follow those federal regulations to issue those permits, and if there isn't an industrial standard, then we use our professional judgment in our evaluation of what is all known, available and reasonable treatment for those industries and establish treatment limits. But for many it's in the federal requirements.

If they discharge to a municipality, there are two situations. One situation occurs when the municipality is on the small side, and they don't have what we call a pretreatment program. In that case, we may issue a discharge permit for that industry to discharge their wastewater to the municipality within established limits. In other words, some industrial discharges have wastewater that is outside the range of capabilities of that treatment plant to handle without upsetting their treatment plant. We would establish limits so they don't upset the apple cart downstream. Sometimes pH levels are above or below what might impact the biology of the treatment plant downstream, so they have to come within a certain pH level. There are different kinds of pretreatment, depending on what we're talking about. People who work with metal, metal-platers, generate wastewater that contains high quantities of metal. Because we don't want those metals to discharge downstream, we may require some kind of pretreatment to remove some of those metals.

MM: I want to ask you about this issue of receiving waters, meaning the waters that receive the discharge. We talked a bit about the marine life, the whales that had beached themselves, but I believe I read that it was the quality of the receiving waters that also determined treatment. Can you explain how that works in Puget Sound?

NK: There are two kinds of standards that facilities have to meet, one is AKART, which is a technology-based standard: all known, available, and reasonable treatment. The other standard is the water-quality standard for the receiving water. After facilities were in compliance with secondary treatment, AKART technology-based standards, Ecology focused more on water-quality-based standards. We have a set of regulations, which change every few years, where we make updates, and that includes receiving water standards. Part of that is a list of pollutants, some of which are metals, where there is a standard that waters of the state must meet. There are also temperature standards. There are pH standards. There are dissolved oxygen standards. It's all part of the water-quality

standards. There is also a list of aquatic life-based water-quality standards. Those are based on not having toxic impacts to organisms in the receiving water. There are also human health-based standards, which came further down the road. EPA originally produced a list of toxicants and standards. We actually do not have our own separate list, but we follow the human health standards that EPA developed. So when a permit writer writes a permit, they first have to evaluate technology-based standards, and then they evaluate water-quality-based standards. The discharge has to meet those, first the technology-based standards and then the water-quality-based standards.

MM: What about the issue of mixing—the discharges mixing with the receiving waters—what are those standards?

NK: When a facility discharges into the water, there's a diffuser, which is a pipe, and at the end there's some kind of a jet device, and it jets the water out, and so it aids in dispersing the wastewater and allowing for better mixing. We also establish in permits something called the mixing zone, and that's also part of our water-quality standards rule. Basically those water-quality standards that I talked about have to be met at the edge of the mixing zone. Now there's two pieces to the mixing zone; there's an acute zone and a chronic zone because there are two kinds of standards within the rules. An acute standard is where an organism will react more immediately, and then there's a chronic standard where, if they are living in waters of concentration above that standard for a longer period of time, it will affect their health.

MM: In terms of mixing zones, how is that related to water flow, particularly in Puget Sound? I learned somewhere along the line, that the amount of movement or exchange with ocean waters was not as free-flowing as what had been previously assumed in the early days. As a result, the early ideas about disbursement weren't as likely as people had originally thought. So you had toxicants that were not dispersing, but staying within the Sound. Do you know anything about that?

NK: I know that there have been studies and certainly, especially in the southern end of Puget Sound, there's less mixing. It's certainly not so quick as in the northern regions where there's more water, you're closer to the channels, and there's more activity. Down in the southern end, there's definitely less mixing, and it certainly has become an issue in Hood Canal more recently, with the very low dissolved oxygen levels.

MM: I wondered if that was part of the study when you were looking at the receiving waters and determining what can go in and what can't. Was that part of the determining factor?

NK: Well, in my particular case, when I was working in the Southwest region, in 1987, I worked on the permit for LOTT: Lacey Olympia, Lacey Tumwater, in Thurston County. Right before then, LOTT's consultants had done a receiving water study in Budd Inlet. The big problem in Budd Inlet, in Olympia, was nitrogen loading. The consultants in conjunction with Ecology's scientists in what is now Environmental Assessment Program—then the Environmental Investigations and Laboratory Services, the EILS Program—made a determination that nitrogen removal was going to be required at the LOTT facility. That was a pretty contentious issue locally at that time. In the end, we required an advanced treatment system for the LOTT facility, which required more then just conventional secondary treatment, but also the removal of nitrogen.

MM: What is nitrogen loading?

NK: One of the pollutants in wastewater is ammonia, and some of it's converted to nitrates in the treatment process. So, nitrogen, when it enters surface water, especially surface waters where there's little mixing, can cause lots of algae blooms. When you have lots of algae blooms, you've got die-off algae, which sinks to the bottom. Then, when it's at the bottom, you use up a lot of oxygen; so you get low oxygen levels. So, nitrogen can impact the oxygen levels, which impact the ability of fish and other marine organisms to live in their own environment. The concern was that there was excess nitrogen loading to Budd Inlet, and there wasn't enough movement into the waters and out to the marine waters. So, part of that study included what was the loading of nitrogen to Budd Inlet, and how fast it was mixing and moving out.

So, nitrogen can impact the oxygen levels, which impact the ability of fish and other marine organisms to live in their own environment. The concern was that there was excess nitrogen loading to Budd Inlet, and there wasn't enough movement into the waters and out to the marine waters.

MM: Why would that be a contentious issue? It seems like, well, removing nitrogen is a good thing; why would anyone resist that?

NK: Because it costs money. An advanced treatment costs more money than conventional treatment, so there was a resistance to doing it because municipalities face a lot of costs other than wastewater treatment, and they have to make decisions on where to put their money. We have relatively high sewer rates here in Thurston County because we're providing additional treatment.

MM: So, is removing nitrogen considered tertiary treatment, which isn't actually required by law, but may be so in special circumstances—for example, in regard to the water quality in Budd Inlet?

NK: In that situation the need to add tertiary treatment was based on meeting water-quality standards. That's the other side of the equation. We have the technology-based and water-quality-based standards, but it was the water-quality-based initiative that resulted in different limits and different requirements for LOTT.

There were other interesting issues that came up as part of the LOTT permit. Ultraviolet disinfection was new, a relatively new technology. When I reviewed that engineering report, I did not agree with how the consultants presented the alternatives. I didn't believe they fully looked at alternatives. So I said to LOTT's consultants, "You need to review ultraviolet disinfection," which they ultimately did. That was also somewhat controversial, but in the end, they were one of the first in the state to have ultraviolet disinfection.

MM: Had the consultants dismissed ultraviolet disinfection?

NK: Well, they really didn't do much of a review. In fact, LOTT was kind of unusual because they actually had an alternative form of disinfection with the first upgrade, using ozone, but the system they had did not work very well. Ultimately, they went back to using

chlorination, which was pretty standard at the time, and it was still used in many places. But I asked them to provide some more information and really look at the alternatives. That's what an engineering report does. It looks at the situation you're in and what your alternatives are for treatment, and then it makes a recommendation in the report. The municipality ultimately makes a decision on which alternative to choose, but Ecology reviews those projects, and makes sure that they adequately review at the alternatives and that we agree with their recommendation. Then we approve those engineering reports.

MM: So, what is the process of ultraviolet disinfection versus chlorination?

NK: Chlorination is where you add chlorine to the final wastewater, which you allow to sit in a tank, and that kills the organisms in the tank. UV disinfection is a little different, and there are a variety of ways to do it, but it all involves UV, ultraviolet lights, which look sort of like fluorescent light tubes, but it's ultraviolet light. Either you put lights in a channel of water, or water flows through. The tubes of lights are in a bigger tube and water flows through this bigger tube through the lights. There are different ways of providing it, but basically the ultraviolet light kills the organisms in the water without leaving any residual in the wastewater.

MM: Which chlorination does?

NK: Chlorine leaves a little chlorine residual. There is some impact to the environment. There's concern about chlorine combining with organic compounds, producing chloramines, toxic compounds. That's something that's been changing over the years. The chlorine standard is part of the water-quality standards, and, in some cases, you cannot meet the chlorine standard at the edge of your dilution zone. With LOTT it was more about looking at the technology. They have a very low dilution in Budd Inlet because there's just not a lot of mixing going on. It's very shallow water.

MM: UV treatment sounds like a healthy, preferable method of treatment, if it leaves no residuals.

NK: Yeah. Cost is always an issue, but the costs have come down. It depends on the situation. Sometimes it can be cheaper, but there's an energy cost that can be higher than when chlorine is used. So, it's really a cost analysis.

MM: And then that's something that LOTT just has to absorb. I mean they just have to pay for that. They're not going to be able to go to the Legislature to get specific monies for that, are they?

NK: Well, they did get some construction grants for that piece. I don't recall what the percentages were at that time. They had built secondary treatment actually fairly early. They did not apply for a marine waiver, and at that time it was 90 percent grants. That was a little before I was involved in that project, but this project also got a grant from the Centennial Clean Water Funds.

MM: Is there anything else you'd like to add?

NK: Well, we talked about the marine waiver, but in visiting the state municipalities, there were a few municipalities, smaller municipalities that discharged to both marine and fresh water, that we talked to about the municipal policy, too. We explained their requirements,

and they heard the same story, and the cable TV analogy. All of the smaller communities eventually built secondary treatment facilities, but it would not have happened so easily had it not been for the Grants Program. The Grants Program allowed a variety of municipalities, from very large to very small, to construct the necessary treatment facilities to protect Washington state waters, the cost of which was shared by all Washington state residents, all of whom ultimately benefit from cleaner waters.

Chapter Six - Beyond Landfills

On Thanksgiving Day 1985, Department of Ecology officials evacuated 12 families living near Midway Landfill along the I-5 corridor south of Seattle when near explosive levels of methane gas, which had traveled from the landfill, were found in their basements. This landfill crisis, which affected a neighborhood of approximately 400 homes and area businesses, drew Ecology and the public's attention to what was one of the state's most serious solid waste problems. This chapter explores the history of landfills in Washington state as well as the development of the state's Waste Management Priorities. Furthermore, it features the sustainability movement, which advances the idea that the conduct of all aspects of human activity should be viewed in the context of finite world resources.

Chapter Advisor: Jim Knudson, Environmental Engineer, Hazardous Wastes & Toxics Reduction Program, Washington State Department of Ecology

Interviewer: Maria McLeod

When the Methane Crossed the Road

An interview with Pete Kmet
September 22, 2004


Kmet

Position held at time of interview:

Senior Environmental Engineer, Toxics Cleanup Program, Washington State Department of Ecology, since 1993

(Employed by Ecology since 1984)

Education:

- Bachelor of Science in Civil Engineering, Norwich University, 1975
- Master of Science in Civil and Environmental Engineering, University of Wisconsin-Madison, 1977

Maria McLeod: Tell me, Pete, at what point did you become interested in solving the problems of landfills?

Pete Kmet: I became interested in solid waste management in my undergraduate years in college. It turns out that my hometown—a little town called Hinsdale, New Hampshire—had a small dump on the bank of the Connecticut River that the state was ordering closed. So, between my junior and senior years in college, I took it upon myself to do an independent study looking at alternatives to what the town could do with its solid waste.

MM: Were you aware, when you were growing up, of the dump's environmental impact on the community?

PK: No, I really had no idea what these impacts were. I didn't begin to start to understand this stuff until I went to college. Then I spent almost the whole summer between my junior and senior years doing a whole bunch of reading on anything and everything I could find about solid waste. I started to run into these articles about what happens when garbage decomposes, how it generates gas and leachate. Prior to that, it never occurred to me that a dump might cause pollution other than the obvious thing of trash being dumped in the river. That's when I really started learning. Then I went to graduate school and learned a whole lot more.

MM: According to your bio, you went to work for Wisconsin Department of Natural Resources (DNR) shortly after graduate school. How would you describe Wisconsin's methods for treating solid and hazardous waste?

PK: When I was with Wisconsin DNR, the state was in the process of making a transition from having unlined landfills to fully engineered lined landfills with leachate collection systems and gas control—the modern systems that we talk about today. Pretty progressive. That transition was made in the late '70s to early '80s, while I was working for that agency. It was a tremendous learning experience for us all, and I ended up publishing a number of papers as a result. Prior to that time, it was very common not only in Wisconsin, but throughout the United States, for every town to have its own little open burning dump along a riverbank or in a swamp. As communities started to grow it became obvious that these stinking, burning dumps were probably not the best thing to have in your back yard. States started to close them down and consolidate them. It was really the first efforts at transitioning to the so-called modern sanitary landfill, which, at that time, was simply putting the garbage in a place where it could be covered. Covering landfills helped to stop the burning as well as to control rats and birds and flies, which are vectors for disease. Actually, I believe that transition started in Los Angeles during the growth boom after World War II and was carried throughout the country in the '50's through the '70s. Wisconsin made the transition from small towns with the burning dumps to the more modern sanitary landfills in the early '70s. I understand Washington also started to make that transition about that same time.

MM: How did people manage their waste in the early days before curbside collection services and landfills and town dumps? What do you know about that history?

PK: I can remember back in New Hampshire, when I was growing up, that along one of the rivers in town, people would go out and dig, looking for old bottles. I asked my dad how the bottles got there, and he said that was where they dumped the garbage back in the old days, along the river. I think you'll find that pretty common; and, as I mentioned earlier, in most communities you found the swamp or the riverbank where things were supposedly washed away, and that's where the garbage got dumped. Either that or it was the small farm out in the woods, like the farm that my dad grew up on. There was a little area where the trash got taken. Of course, back in those days, anything that could burn was burned, usually, in a burn barrel. Anything that was salvageable at all was salvaged. People just didn't throw away as much stuff. They didn't have the plastics and the papers and organic material that we have today. It was more inert material, and, frankly, that didn't cause that big a problem until after World War II when the big boom occurred with all of the soldiers coming back and all the construction and economy taking off. That generated a lot of waste.

MM: And this was happening nationally?

PK: Well, for example, Los Angles was in a big boom, and in New York there was the emergence of big housing tracts and subdivisions on Long Island, outside of New York City. So it wasn't practical to just dig a hole in the back yard and bury it anymore. It had to be somehow organized for collection to occur and for the trash to be taken somewhere. In my case, my hometown dump was located along the riverbank. We'd go down there, shoot rats and have a grand old time. As kids, you know, that was a great place to go. That's pretty classic of the way it was in America. Again, as communities grew, and it became obvious this stinking, open burning dump wasn't compatible with the rest of the community, it became necessary to make the transition to something more controlled. That transition occurred over a period of 20 to 30 years, depending on where you lived. In Los Angeles, they reached that conclusion in the late '40's. As a result, the earliest studies done on sanitary landfills were done in the L.A. area.

MM: Beyond aesthetic issues, and general health concerns, what discoveries led the push for the use of new technologies?

PK: Initially it was thought that if garbage was kept above the water table and out of the surface water, we wouldn't have groundwater pollution. During the early '70s, as they were making that transition from the small burning dumps to larger county-based landfill systems, they found out that groundwater pollution problems arose due to the leaching from the garbage—so-called leachate. Some early studies were done to determine why that was happening and what could be done differently. Initially, it was decided that the fills be located in places where there were natural soils that can attenuate or cleanse the leachate, kind of like a septic drain field. That worked pretty well for smaller sites, but as sites got bigger and bigger, the natural environment just couldn't handle the loading. Also, it became difficult socially and politically to find locations that had the right geology. It was quickly thereafter, in the late '70s, when we started to realize we needed to engineer these sites and put in liners and leachate collection systems to contain the leachate as best we could to try to minimize those impacts.

Initially, it was decided that the fills be located in places where there were natural soils that can attenuate or cleanse the leachate, kind of like a septic drain field. That worked pretty well for smaller sites, but as sites got bigger and bigger, the natural environment just couldn't handle the loading.

MM: I'm envisioning the leachate as the fluids that leak from garbage and drain down? Is that correct, or is there a better way to describe it?

PK: What happens to create leachate is that when water, rain water in this case, is filtering down through the garbage, it's going to dissolve out things that are soluble and that leach, and the water will pick them up and become contaminated, and that's what we call leachate. Sometimes you'll see rivers flow a brownish color, not because of sediment, but because there's tannin and lignin being leached out of the woods along the banks of the river. So, this leaching process is a natural process, only, in a landfill, lots of things leach. There's not just wood and natural organic matter, like grass clippings and food wastes, but all the

man-made stuff that's part of garbage—metals of various kinds, printing inks and everything else that's part of paper products, solvents and chemicals used in everyday products and plastics. In the end, it's a combination of all the stuff leaching out of the garbage and carrying contaminants into the water as it flows through the garbage.

MM: And how does it enter our groundwater? Does it just travel through whatever material is underneath the landfill, like, for example, at the Midway Landfill it was gravel, which is pretty porous?

PK: People think of groundwater as flowing in rivers and streams, but that's not the case at all. Groundwater is everywhere. Groundwater is rain hitting the surface of the ground and soaking in. You can actually watch this when it's raining. It will soak into the ground and gradually seep down until it reaches a point where the spaces between the soil fill up with water. If you've ever looked at the spaces between the crushed rock, that's a model of what the soil looks like, except the soil particles are much smaller then the pieces of crushed rock. You have all these pores in the soil, and then when you get down to a certain depth, the water coming down will hit a layer of bedrock or clay where water can't pass through very readily. The water will start to build up and create this water-saturated layer, which is called groundwater.

In the case of a landfill, all this stuff leaching out reaches the bottom of the landfill, and it's going to do one of two things. If the bottom of the landfill is sitting on clay, it's going to build up because it isn't going to be able to go through it very readily. If the bottom of the landfill is gravel or sand, it can pass water very readily, then it's just going to drain out and continue going down until it hits the groundwater where it will mix in and pollute it.

MM: How do leachate collection systems stop this process and alleviate the potential for pollution?

PK: With leachate collection, you start with a liner. The classic liner would include putting down layers of clay anywhere from a minimum of 2 feet, as required in Washington, or in states like Wisconsin, they require 4 to 5 feet of clay. That's usually topped with a plastic membrane, and we're not talking the type of thin plastic sheet that you might use at home. We're talking about 30, 40, 60 mils thick, thick as cardboard on the back of a notebook pad. On top of that is some kind of gravel or sand drainage layer. It's all sloped, and every so often it forms a low spot where you'd put in a pipe with holes where the leachate then flows and drains, usually to a sump area or a man hole, where it's then pumped out and either treated on-site or pumped into a sewer, ultimately mixed in with sewage and treated at a sewage treatment plant. That's what a leachate collection system is.

MM: Is there such a thing as an impermeable liner? Is that really possible?

PK: Well, I help teach a course in landfill design, and one of the guys who teaches the course with me always makes the statement, "Nothing is totally impermeable, everything leaks." Roofs leak on buildings, and the fact of the matter is, we design these landfill liners the best we can to minimize leakage, but they do leak some. If it's a plastic membrane, there are going to be holes made while they're installing it. There's no way around it. There have been lots of studies showing that you can do things to minimize the number of holes that happen, but there are still going to be holes, which is why we put a clay material underneath them to back them up, but even clay liners are not totally impermeable. Water

will move through clay, very slowly, but will move through clay. There is some leakage, but it's much less than what occurred in the old days without a liner. So, no, they're not perfect, they do leak some, and certainly there are plenty of sites where there have been liners and leachate collection systems installed that were either not properly designed or poorly operated, which resulted in leakage problems.

MM: What was the status of the landfills in Washington when you joined Ecology in 1984? Had the state begun using liners in the landfills, or did it happen after you arrived here?

PK: From what I remember, there were almost no landfills in the state that had a liner. My recollection is that all of the big sites, the Seattle sites, including Midway and Kent Highlands, the Tacoma Landfills, Spokane Landfills, Olympia Landfill, and the smaller communities were using sanitary practices in the sense they weren't open burn dumps anymore. They were covering the garbage with dirt. But the fills were mostly in unlined gravel pits and vacant land areas, and they didn't have any engineered lined leachate control systems of any kind.

MM: It seems that Washington might have been behind the times, especially in comparison to what was happening in Wisconsin? Did that surprise you?

PK: Actually, I was pretty shocked. I was coming from Wisconsin, where all of the larger sites had liners. We're not talking thin plastic liners, we're talking 4 to 5 feet thick clay liners, leachate collection systems, extensive groundwater monitoring networks, gas control systems. I came out here, and there was basically none of that stuff. They had some control over the drainage, and there wasn't open burning occurring that I remember, but in terms of the engineered controls of the systems, they weren't there. I was really appalled at how far behind this state was, but that created lots of work for me in the Superfund program, working on clean up. People knew I had this background and that I had done a number of publications. The state was in the process of writing a new regulation, Chapter 173-304 of the Washington Administrative Code. I got involved as a technical advisor to the Solid Waste Program, providing advice on how to write parts of that rule to require leachate collection systems for landfills. That rule was published the year after I came here, in 1985. It was there on paper, but that transition really didn't happen for several years, in part because the rule allowed it. People continued to use the current landfills that were unlined, mostly unengineered landfills, and I don't think they really understood the consequences of that until Midway happened.

MM: What was the Midway Landfill and where was it located?

PK: Basically, it was a gravel pit that was next to I-5, about midway between Seattle and Tacoma, in Kent, the "Midway" area. In fact, there's a landmark drive-in, the Midway Drive-In near it. If you listen to the radio traffic reports about I-5, you'll sometimes hear that in the Midway area there's a backup or an accident, or whatever. Anyway, the landfill itself began as a gravel pit. I'm not sure how it got created or how the City of Seattle ended up choosing it as a disposal site, but it ended up becoming a landfill for a portion of the wastes that were generated by the City of Seattle. By the time I came in '84, Midway Landfill had been closed a year.

MM: In my research I found that it was a gravel pit from '45 to '66. Then from 1966 to 1983, it served as the city's landfill. Apparently, there were 3 million tons of solid waste

deposited there in an unlined landfill: demolition materials, wood waste, and other slowly decomposing materials. Then industrial waste was also dumped there prior to the 1980 state mandated screening. So, what does that mean to you? What does that equal when I say 3 million tons of solid waste, demolition materials, wood waste and other slowly decomposing materials?

Location of Midway Landfill in Kent, Washington, midway between Seattle and Tacoma.

PK: My understanding is Seattle had two landfills that were operating simultaneously within one mile of each other—the Midway landfill and the Kent Highlands landfill. From what I recall, Kent Highlands took all the municipal solid waste collected from the residential areas of Seattle. Everything else, including all of the commercial waste from businesses, office buildings, restaurants, industrial facilities, demolition waste, all of the "non-trash," in their minds, was dumped at Midway. They had made the distinction that Midway didn't take garbage or municipal solid waste. Well, I'm not sure how you make the distinction between the food scraps that you throw out from your kitchen and the food scraps that are thrown out by the restaurant, but they did. My understanding is that a variety of industrial wastes were also disposed of—what we would think of today as hazardous industrial wastes—were dumped at the landfill. In fact, I don't remember the exact date, but I believe in the '90s the city was installing a drainage pipe which required digging a trench into the landfill, and they actually brought up some drums of industrial waste. Yet the city had claimed all those years that there was never any hazardous waste there. So we did, ultimately, confirm that hazardous industrial waste had been dumped in Midway, but the methane gas problem wasn't caused by that. It was caused by the decomposition of organic matter that was dumped.

MM: Can you describe the crisis of the Midway Landfill, and what happened to the Midway neighborhood in Kent?

PK: Well, you can imagine Midway sitting on a hilltop between the Green River Valley and Puget Sound. To the west the hilltop drops off really quickly to Puget Sound, but to the east, it's pretty flat for about three quarters of a mile. Then it drops off pretty dramatically down to the Green River Valley. There's almost a cliff right there as the ground drops off to the Green River, a couple-hundred-foot, nearly vertical drop. So, in this flat, terraced area in the hilltop, they had dug the gravel out, creating a gravel pit. Well, the gravel didn't stop at the edge of the gravel pit. It kept going. It went under the freeway, and it went to the east until it eventually daylighted out onto the side of the bluff overlooking the Green River Valley. The area between the landfill and the bluff is about three-quarters of a mile, and that's all filled with houses. So, this methane gas that was generated in the landfill had to go somewhere, right? Some of it came out the top. I can remember people saying that the landfill really smelled in the early '80s. Now, pure methane doesn't smell, but landfill gas contains not only methane but also trace amounts of other gases like hydrogen sulfide that

smells like rotten eggs. So, that smell was definitely an indication of gas coming out of the top, but all of it couldn't have come out of the top, especially when you're talking a 60-acre site, parts of which were a hundred feet or more deep. Since the gas couldn't all get out through the surface, it went wherever it could go. Here's this nice porous gravel seam off to the east and to the south. So it migrated and followed that gravel and then rose up into the basements of homes overlying that gravel seam.

PK: Once we figured out the area of concern, where methane gas was found above explosive levels, we estimated some 400 homes were in the affected area.

MM: You mentioned that methane gas is produced when garbage decomposes. What's that process?

Midway Landfill and vicinity.

PK: Any organic matter will decompose naturally. There's bacteria that causes that decomposition to occur. If there's oxygen present, that decomposition process occurs by a certain type of bacteria called, aerobic bacteria, they live in an aerobic or oxygen-rich environment. They basically can work the organic matter to carbon dioxide and water. That's what occurs in a composting pile when you turn it over and you get air into it. When you bury a lot of garbage very deeply, in this case up to 100 feet or more, there's no way oxygen can get down into that garbage. What happens is, as the decomposition process occurs, the oxygen gets used up fairly quickly. Pretty soon those bacteria die off, and you start to see a different type of bacteria that are, again, naturally in the garbage, facultative bacteria. These bacteria can live in environments where there is oxygen or a lack of oxygen, a so-called anaerobic condition. They live in this intermediate state, and instead of turning the organic matter into carbon dioxide and water, they turn it into organic acids, things like acetic and butyric acids, the type of acids you find in vinegar and rancid butter. Those acids, it turns out, feed another type of bacteria called methogenic bacteria. These methogenic bacteria, methogens, will take those organic acids and convert them to methane and carbon dioxide. That's how they get their energy, by breaking down those organic acids. That's where methane comes from.

MM: Were there other human health issues besides the methane gas, other issues of concern?

PK: We did find trace levels of toxic chemicals in the gas and so certainly there's a potential for people breathing that and, in the long run, possibly getting cancer or some other illness. The more classic concern with landfills is the contamination of groundwater and people drinking that water, but that wasn't an issue at Midway. The instance you're most worried about is the places where you have household wells, because there's no treatment of the water or testing done. It's just pumped out of the ground into a tank and into your drinking

water. In the case of really bad leachate contaminated groundwater, you can taste it. It discolors the water somewhat, and makes the water taste and smell extremely bad. I have actually tasted leachate contaminated water from a well, and it made me gag for two hours afterwards. It's almost like drinking sewage. Obviously with water, when it gets that bad, a person's naturally not going to drink it, right? But for some of the chemicals that are dissolved in leachate, there is no odor or color or taste. So, we've had situations in the state where, when we went out and tested wells, we found solvents in the wells, but you would never know it by drinking the water. That's why you do monitoring, you test for that. Now, the case at Midway, that area was served by a public water system. There were some private wells around there but they weren't being used, that I recall. I don't remember that anybody's well was found to be polluted by the leachate, but that's usually the health problem that you're worried about.

MM: I'd like to travel backwards in time and talk about the history of the Midway Landfill and how this gas was eventually detected. The site itself, as a landfill, was closed in 1983 by the City of Seattle when it was listed on the National Priorities List. But previous to that, in 1980, the city of Seattle began doing testing, monitoring, checking groundwater, things of that nature. Is that when they discovered the methane?

PK: When the site was listed on the Superfund list—now we're talking 1984—there were concerns that there had been hazardous waste dumped in the landfill. I don't think the city had done much in terms of groundwater monitoring. They may have had a few wells and found some limited contamination, but there really wasn't a comprehensive study done at that time. When I became aware of the site in '84-'85, they had started to do the investigations to figure out how they were going to close off the site. So, they started drilling some monitoring wells and some gas probes around that site. By then we'd figured out that garbage, when it decomposes, generates methane. We started to find not only groundwater contamination, but also methane pretty close to the landfill, right on the boundaries where they had drilled these wells. There just happened to be a building on the landfill property itself that was a daycare center. As some of these investigations were being done, somebody went in and checked that building to see if there was any methane gas in it. Sure enough, there was. So that daycare was closed down and evacuated. That made headlines. Then people began to wonder what else was going on up there.

We found areas as much as half or three quarters of a mile away that had methane above that lower explosive limit, and some areas concentrations of 80 percent or more, even 100 percent in some of the probes, which is pure methane.

MM: What other evidence did you find?

PK: The other clue we had was across the freeway. You've got to remember, this is a six-lane freeway with a median, which is a pretty wide swath of land, probably 100 yards wide at that point. Well, on the other side of that freeway was a stand of dead trees. Dead trees are a classic indicator of methane gas, not because methane is toxic to trees, but because if methane is in the ground around the roots of the trees, that forces out the oxygen and kills the trees. We were having trouble getting the city to do a further investigation to figure out just how far the methane gas had gone, so Ecology hired a consultant and drilling company.

They started drilling gas probes all over the place, trying to find how far the gas had gone, and kept drilling and finding more of the gas and kept going further and further and further out, to the point where we identified an area that had gas in the ground above the explosive level of methane, which is 5 percent by volume. We found areas as much as half or three quarters of a mile away that had methane above that lower explosive limit, and some areas concentrations of 80 percent or more, even 100 percent in some of the probes, which is pure methane.

Now, methane, as it comes out of the decomposition process, when garbage is decomposing, is about 50 percent methane and 50 percent carbon dioxide, which made us wonder where these high concentrations were coming form. As it turns out, carbon dioxide is soluble in water. It's the thing that makes our carbonated beverage bubble. So, as this gas was seeping through the ground, rain was trickling down, and it dissolved out the carbon dioxide leaving only methane behind, to the point we were getting 80 to 100 percent pure methane in the ground, with hundreds of houses sitting over this area. So we had ideal conditions for generating methane, ideal for migration. Then you had a huge amount of development around it, which is pretty rare. Even for older landfills, certainly landfills of this size, it's not common to see a whole city built right up against it like the Kent neighborhood next to Midway. So, it was a combination of factors that caused the severity of the problem.

MM: What had been your experience with methane buildup prior to the Midway Landfill?

PK: A year before I moved out to Washington, the winter of '83-'84, I was involved in a situation where we had a house blow up. A relatively small landfill, probably three quarters of a million cubic yards, had been closed off by the City of Madison, and the gas had migrated across a small street into a home. This couple came home, and the guy lit his pipe and got blown out of the second story of the house onto the street. His fiancée, on the first floor, got badly burned. So I knew what methane could do, and particularly methane from landfills. So, as we learned more about the Midway situation, and how far the gas had migrated, we became very concerned about all these houses sitting over a cloud, if you will, of explosive gas. Under normal circumstances, you'd just evacuate the area, but we had 400 homes, and there weren't enough hotels in Seattle and Tacoma to put all those people up, not to mention all the businesses. We very quickly came to realize that you couldn't just evacuate everybody—that we'd have to be more judicious in how we approached the situation. So we put in more probes to figure out where the gas was.

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MM: And did you end up inspecting all 400 homes and the businesses?

PK: Well, we started a program of monitoring houses daily, going around checking houses throughout the area, which we divided up and began investigating by breaking up into as many as 4 to 6 teams of 2 people. This was a joint effort by the City of Seattle, Ecology, and our contractors—all of us going around, checking to see which homes had gas coming into them. We did find one fortunate detail. Most of the homes and businesses out here don't have basements; rather they have crawl spaces or are built on a slab. While gas can get into those types of houses, you don't nearly see the kind of accumulation that you would in a basement, and so we were very fortunate there were only a handful of houses that had basements.

MM: So that became a qualifier for prioritizing inspections—who had a basement and who didn't?

PK: We stumbled into it backward as I recall, but that became an important feature as to whether or not a home had the potential to have a gas problem or not. Still, with slab on grade, there could be problems. One of the businesses was just a slab on grade, but there were cracks in the floor where gas was coming into the building, but because that was an active area, where people were working, it was less likely for gas to accumulate. With basements, people may not go down there for a few days, and there's not a lot of circulation, no windows. You're in the middle of a fall rainy season and the heat's turned on; it's creating this sort of suction that's drawing the gas into the house. If you get a weather front moving through or the barometric pressure drops, all this gas wants to come up out of the ground. That's when you get the conditions where it builds up to the point that it reaches explosive levels. We were fortunate that never happened at Midway. We never had a house blow up.

MM: Were you nervous when you realized what you were dealing with, that there was 100 percent methane in some places and explosive levels throughout?

PK: Oh, absolutely. It was like, holy cow, I've never seen anything like this before! Who would think that the gas would migrate across the freeway, a six-lane freeway, for crying out loud? Who would think it would be a half-mile away from a landfill? I never heard of that, absolutely had never heard of that. Now, I can't say I know everything, but at that time in my career, I'd been involved in solid waste for, what, seven, eight years? I had done extensive reading of the literature and journals and magazines, and I knew a lot of people in the field. This was by far the worst methane gas migration problem I had ever seen.

Sampling for combustible gases in a Midway area home, 1985

The other scary part of this situation was that normally you can smell landfill gas, even though methane doesn't smell, there's other things with it that smell. That's give people a clue that something is wrong. Well, in this case, because the gas had migrated through the ground, a lot of

those little smelly things had been filtered out. So, by the time you got to the homes that had gas problems, there was no odor at all, which is unusual.

MM: I want to ask you about the evacuations themselves because those made headlines. They were called the Thanksgiving Evacuations, and then you were involved in one on New Year's Eve. How was it determined that these residents had to evacuate?

PK: In regard to the Thanksgiving evacuations, I wasn't there, but my understanding is that, as part of our routine monitoring program of going around and checking homes, these were homes where gas was found above the explosive level. Ecology didn't have the authority to evacuate anybody, but the fire department and health department did. So, whenever they ran into a situation where the gas was at a high concentration, the fire truck would roll, the health department would come in, and we would jointly confirm and decide whether that home had to be evacuated or not. That was the case I was involved in on New Year's Eve, which was similar to what happened on Thanksgiving.

MM: Can you describe what happened that evening 20 years ago, December 31, 1984, a few hours shy of 1985?

PK: It was evening, and I was one of a crew doing monitoring. We happened into this house probably about 8 at night. They had the neighbors over, having a New Year's Eve get together. We went down into the basement and, sure enough, found explosive levels of gas coming into the house. I had to walk upstairs and tell these folks, "I don't think this house is safe for you to be in tonight. You need to leave this house." They were mighty upset at the whole situation. I remember having the wife, the homeowner, yelling in one ear and the neighbor's wife yelling in the other ear at the same time. I mean, they unloaded everything. I don't want to ever have to do that again, let me tell you. That's quite a thing to tell somebody.

MM: Did you feel you were getting that moment's anger plus a history of concern and nervousness over the whole situation?

PK: Absolutely, yeah. I didn't feel like it was me personally that was being yelled at; they were just yelling at somebody. Now, think about it. You're going into somebody's home and telling them that there's this mysterious gas that none of them can smell, taste, or detect in any way, but this little meter is showing that this stuff is coming in. You can't tell it's there, but sure enough, it's there, and believe me, I know that these things can cause problems. I'm coming in with authority and saying, "We've got a problem here folks. You've got to leave your house. It's not safe." This is their home, these people's life investment, and maybe they have a child sleeping up in the bedroom upstairs. You can imagine the emotions going through their minds.

MM: Did it make you nervous, personally, for your own safety, when you were getting readings of explosive levels?

PK: No, because even in some of the houses that were abandoned, we'd go back into them. One of the first things we'd do is crack the door and stick the meter in to see if it was explosive or not. If we didn't measure explosive levels of gas, we knew that the general atmosphere was not an explosive concentration and we could enter the house to do additional monitoring. However, even if the overall atmosphere was not explosive, we

would sometimes find gas at explosive levels coming in cracks in the basement, or in the foundation drains, or any opening in the basement. Of course, in the back of my mind was the situation in Madison, Wisconsin. What had happened there, just a year before the Midway incident, is that the city had gone in, a very similar situation, and checked for gas in the house. They found trace levels of gas, and concluded it wasn't a problem. The couple comes home the next evening, and a storm comes through dropping the barometric pressure and drawing gas into the house. Kaboom. The house blows up. So, here I know explosive levels of gas are coming into this house in the middle of this New Year's Eve gathering, and there's a storm front on the way, and there's no way that house is safe to be in because if they close up the doors and go to bed, they may not live to see the next day. They've got to get out of there.

MM: I'm wondering, during all this, what was the public's response to your presence in their neighborhood? In this situation, they seem somewhat hostile, definitely not happy, but as you're out there working, in general, what was the response of citizens in the Kent neighborhood?

Well, in this meeting, you could have heard a pin drop. That quiet. People were scared to death. They didn't know the technical stuff, but they did ask all kinds of questions, like "Will this stuff kill me if I go out and lie on the ground in my back yard, and I roll over so my face is on the ground?" If I throw my cigarette down on the ground, will the ground explode?" "If my furnace kicked on, would the house blow up?" These were real questions.

PK: In general, people treated us as people who were there to try and help solve the problem, and they welcomed us. There were concerns, and we tried to be as responsive as we could. Some wanted their home monitored, but they weren't on the schedule, still, we went to that house. People were aware that things like barometric pressure could affect whether gas would migrate into their homes or not. We posted the readings in the neighborhood office at the local church, so people could come in and get the latest gas probe readings. We posted them right on the window. We had a recording barometer showing the barometric pressure. We went out of our way to be responsive to people and I think that was a big change—because let's face it, I mean the City of Seattle had ignored them for a long time. A lot these citizens had a long history of living in that neighborhood with odors and other problems that had been ignored. They had a lot of issues. We ran into issues with failing septic systems and industrial facilities that they thought were causing other types of contamination. We followed up on every one of those, and I think we showed people that we were out there and we truly cared.

MM: I read that you held a public meeting in January, probably not long after the New Year's evacuation. Can you tell me a little about that meeting and your involvement in it?

PK: We held one of our first public meetings in Kent, east of the landfill at the Sunnyside Elementary School Gymnasium. The place was packed to the rafters, several hundred concerned citizens. The whole floor was full of people. I don't know if you've ever seen footage of the early

EPA Superfund meetings for the Love Canal incident or similar situations where people were screaming and yelling? Well, in this meeting, you could have heard a pin drop. That quiet. People were scared to death. They didn't know the technical stuff, but they did ask all kinds of questions, like "Will this stuff kill me if I go out and lie on the ground in my back yard, and I roll over so my face is on the ground?" If I throw my cigarette down on the ground, will the ground explode?" "If my furnace kicked on, would the house blow up?" These were real questions.

MM: In some of those public meetings, I think you're often made the enemy just because you're the one person they get to finally confront. Did you not feel that way, or ...?

PK: Not at all, not as an Ecology employee. I think there were feelings toward the City of Seattle, but Ecology was seen as the people coming in to try to help solve the problem. When we went around to the neighboring houses and were monitoring their homes, or even out there working on the street monitoring the probes, people would stop by and talk to us, ask us what was going on, what the readings were. No, outside of that New Year's Eve incident, which was understandable, I never had any hostility expressed toward me as a Department of Ecology employee.

MM: So, what was done to alleviate the situation, to get rid of the methane gas?

PK: The City began installing gas control systems, basically a series of extraction wells, in the fall of 1985. We hired specialty contractors—these are the guys who go all over the country, doing this kind of work—who brought in their half-million dollar pieces of equipment to do the job. In order to create the extraction wells, they began by drilling a hole in the garbage so a perforated pipe could be inserted. Then the space around the pipe was filled with crushed rock, creating an extraction well. A number of these wells were installed within the landfill and connected by more pipe to a large blower or fan that created a vacuum to suck the gas out of the landfill. This had to be done carefully so that air wasn't drawn into the landfill, causing the landfill to catch on fire spontaneously, much as if wet hay were placed in a barn. In fact, at Midway, early on when they put in this system, part of the landfill caught on fire because they had too much suction. They had to dig up that part of the landfill and soak it with water to eliminate the fire. To avoid this, each well was fitted with a valve to control the amount of suction placed on it. Sometimes they put two wells in the same hole at different depths to try and get more precision when extracting the gas. The extracted gas was piped to a central location where it was flared or burned off in an open flame. You'll see this type of flaring used at petroleum refineries to burn off waste gases. Today, all this is controlled in a contained chamber where the flame is completely hidden. There's a flame in there, but it's completely contained. This way, you can do emission testing in a more controlled manner, making it easier to monitor. Otherwise, it's pretty hard to test an open flare because the flame's jumping around, not to mention you can get fried like a french fry.

While all this was going on at the landfill, the city installed some small gas extraction wells next to several of the homes that had gas coming into them. Ecology installed a couple of large gas extraction wells in the neighborhood east of the landfill. Together, these wells eventually removed the pocket of gas that had migrated into the neighborhoods and stopped further migration from the landfill.

MM: It seems that, at the time of the Midway landfill crisis, or shortly thereafter, landfills practices and operations in Washington state really began to change for the better. What is the status of landfills at present?

PK: In 1988, Ecology put out a newsletter, summarizing the status of the major landfills at that time. That report shows that all of the major cities that had landfills back then were on the Superfund list, in the process of doing expensive studies to figure out whether they had problems like Midway. Now those landfills no longer exist; they're all closed, and all of that waste goes to other, fewer landfills. Actually, there's only a handful of landfills left in the state, and they're much larger, in part because there is an economy of scale. All of these sites have conducted geologic investigations. They were built with liners and leachate and gas collection systems as well as gas and groundwater monitoring systems. So things have changed dramatically.

MM: In terms of a potential spot for a landfill, I imagine people realize that gravel pits are no longer the answer, but I wonder, what's considered the ideal location? How is that determined?

PK: Ideally you'd like to find a spot that has a great distance to groundwater. In the event that something does manage to leak out of your liner system, you want it to have a long time for the leachate to attenuate or cleanse itself before it hits the groundwater. And you'd like to be in an area where there are not a lot of wells and people around, in case there is a problem. You'd also like to be in an area with a lot of dirt or soil, to cover the waste and to build the liners and the final cover cap on the landfill. All of these factors and others are reflected in today's regulations.

So, it turns out a gravel pit is the worst possible place you could go, but politically, that sometimes is the only place you can go because it's an eyesore, and people want it restored to something that's useable, right? So, that's why landfills often end up in gravel pits, but it's not necessarily the best place to put them. If someone is seriously looking for a landfill, they're going to look at all of the geologic information available within a reasonable driving distance, try to pick out locations which are naturally good spots for a landfill, go out and do a bunch of borings and drill test wells to try to define the soil and the groundwater conditions, and all the potential environmental concerns. Then they'll use that information to design a landfill.

MM: How did the Midway Landfill crisis impact how landfills are owned, operated, and regulated now?

PK: In Washington state, when I came in '84, most of the big municipalities were being served by publicly run landfills. There were a few private operators that had private landfills that contracted with municipalities, but that was pretty rare. Mostly it was handled by municipal government or county government. I would add that, in the way Washington state law is set up, the Department of Ecology can pass state regulations governing how landfills are to operate, but those are enforced by county health departments. In some cases, you have the County Health Department regulating the county Public Works Department, both of which have the county commissioners as their boss, who get elected on a platform of not wanting to raise taxes or fees, right?

So, why in the world would the County Health Department ever tell the Public Works Department that they have to spend a lot more money to do this right? I think that's part of the reason why the solid waste management was in such an abysmal state when I came here in the early '80s. It took a situation like Midway where homes were evacuated, millions of dollars were being spent, and the potential for tens of millions of dollars, if not hundreds of millions of dollars in lawsuits, before that the light bulb finally went on and people started to think, maybe I'd better pay attention and start doing this right or I could end up like the City of Seattle with this big mess and go bankrupt. And it wasn't just Midway. We had gas migration problems in Tacoma, at the Tacoma Municipal Landfill. We had polluted wells in Pierce County, at the Hidden Valley Landfill. Over in Spokane, there were several homes there that experienced gas migration problems and polluted wells. It all happened at once. It seemed like everybody was finding out that there were all these groundwater contamination and gas migration problems at once. All of that, in combination, made a light bulb go on, and people began to think, we'd better stop doing this and start doing something different.

MM: Where are the Washington landfills being developed today?

PK: Because of the difficulties in finding a landfill site, particularly here in Western Washington where everything's built up and become urbanized, almost all of the garbage now goes to a couple of landfills in Eastern Washington and Oregon, along the Columbia River, near Roosevelt, Washington, and Arlington, Oregon. We're talking big landfills. Midway was 60 acres in size, 3 to 4 million cubic yards in volume. Those sites down there are a thousand acres in size, 200 million cubic yards of volume—literally mountains of garbage, hundreds of feet thick. So, that's where the majority of the waste that's generated in Washington state goes, to those two sites, both of which are privately owned and operated.

MM: I know you were involved in writing and revising the rules of the Model Toxic Control Act, providing guidance for clean up. I was wondering how the Midway Landfill crisis impacted legislation and regulations following 1985?

Ecology's Eastern Regional Office Damon Delistraty Inspecting Waste Drum Storage Area.

PK: When I came to the agency in 1984, we did not have stable funding for the cleanup of contaminated sites, and we didn't really have clear authority. We had maybe two sentences in the statute saying we had some very vague authority to require the cleanup of contaminated property. There were a lot of efforts made over the next several years to try and get a law passed and a stable funding source in place to establish a cleanup program within the state of Washington, and they all failed. It got to the point where we almost closed up shop here shortly after the Midway incident. I'd say, right about that time, '86-'87. Then the environmental community got frustrated and decided to write up their own law and circulate it as a citizen's initiative—Initiative 97.

Well, in the middle of that, a lot of the legislators and lobbyists that were involved in those discussions, trying to create a cleanup law, realized that the environmentalist version of this law was going to be a lot tougher than they wanted. So, they got together and wrote up a bill. Then Governor Gardner called a special session, and they passed a cleanup law as an alternative to the initiative in only one day. It was a remarkable turnaround, but the environmentalists were not satisfied with the new law and continued to gather signatures, eventually getting their initiative on the ballot. So, in November of 1988, there were actually two questions on the ballot, one was something like, "Do you want a state cleanup program to clean up contaminated sites?" The second question was, "If you do, which one do you want? The so-called business version, which was the Legislature's version, or the more stringent environmentalist version, Initiative 97?" In answer to the first question, 85 percent of the voters said they wanted some type of cleanup program, which was a huge percentage. On the second question, the split between the two bills was like 45 percent for the Legislature's version and 55 percent for the initiative, again a pretty substantial supporting majority. That created the Toxics Cleanup Program in Washington state, and I believe there was such strong support for a cleanup program and that initiative in particular because of the publicity that Midway and many of the other contaminated sites had received over the year or two prior to that election.

MM: It sounds like the initiative's passage may have been difficult for business. How did that impact, if it did, how you went about writing the rules?

PK: During the campaign there had been quite a bit of animosity between the business and the environmental community. Business had spent over $1 million trying to refute this initiative, and so the environmental community was pretty pumped up about having beaten business. Christine Gregoire was the director of the Department of Ecology at the time, and she called everybody into a room and said, "OK, time to lay down the hatchets and let's roll up our sleeves and work together to make this work," and that's what we did. It was really the first negotiated rule-making process where all sides sat down together and tried to work with Ecology to write the rules to implement the law.

MM: And where do you find yourself when faced with such a divide, business versus the environmental groups? Are you in the middle, the mediator?

PK: In most cases, we were probably more along the same thinking as the environmental community in terms of trying to represent the public's interest. In this situation, however, there were times when we sided with business and said, no, from a practical point of view, it will never work if we do it that way. So were we mediators? I don't think so, but yet we did play a role as a mediator in some instances, and in some cases we'd take on the lead role by advocating for a particular viewpoint because, administratively, we knew we had to do it that way or else it wouldn't get done. So, it's a very intense, dynamic process, but when you get all done and everybody sits around and says, good job, looks like I can live with this, it's a good feeling.

MM: What regulatory authority did those rules give Ecology, and what funding sources were generated?

PK: The initiative and the rules that implemented it did several things that advanced the state of solid and hazardous waste disposal in Washington state. The legal processes and standards that cleanups have to meet became a lot clearer. Ecology got clear authority to

step in when the local health districts refused to take action on a landfill causing problems. The initiative established a tax on hazardous chemicals that generates millions of dollars a year, not just to fund Ecology's cleanup program, but also many other programs geared to preventing future cleanup sites. It also generates millions of dollars for grants used to collect and properly dispose of out-of-date hazardous chemicals and pesticides and to close out the old unengineered landfills.

MM: Looking back at it now, how do you think the Midway Landfill crisis impacted your professional career?

PK: Sites like the Midway Landfill come about once in a career. Because of the actions we took, we helped a lot of people and the environment in a small corner of the world while advancing the overall state of solid and hazardous waste management in Washington state. Growing up in small town New England, I couldn't have anticipated that my chosen profession would include an NPR interview, or interviews by Seattle news crews. Through Midway, I learned a lot. And I'm not just talking about the technological aspects, but also about dealing with the press and the public. These are things they don't teach you in engineering school. I sometimes wonder, if I hadn't been working at Ecology when Midway happened, would I have had an opportunity to learn all that?

Going More Than Halfway Over Midway

An interview with Janet Rhodes
October 5, 2004


Rhodes

Position held at time of interview:

Retired, Environmental Planner, Washington State Department of Ecology, 1973 – 2003

Toxics Cleanup Program, Hazardous Waste Program, Environmental Review Program, Shorelands Program

Education:

- Bachelor of Science in Microbiology, Oregon State University, 1973

Maria McLeod: How did you learn about the 1985 crisis at Midway Landfill, and what was your earliest involvement in that crisis?

Janet Rhodes: I attended a public meeting in Kent, in a neighborhood elementary school gymnasium, sponsored by the PTA. I can't remember the exact day, but it was in January of 1986. I had just been hired into the Hazardous Waste Cleanup Program from the Environmental Review Section to do public involvement. I was told there was a crisis at Midway and they needed me to work on the public involvement aspect, so the public meeting was my introduction. Citizens had heard about the methane gas problem either through neighbors or articles in the newspaper and were very concerned. There were 600 people in that gym, and all sorts of news media, with very prominent television cameras.

People were scared, many of them were angry and terrified. Here there's this colorless, odorless gas creeping into their homes, and they couldn't tell it was there. People had been evacuated already, some on Thanksgiving. So, they had this vision of people having to walk away from their Thanksgiving dinner, which is a very strong image for people to have. They were concerned that there was this gas that could be coming into their homes, their basements or their crawl spaces, and it could explode. That's a very scary thing. They wanted to know about their risks. They wanted to know what was being done.

MM: Who was there to speak to them?

JR: There was someone there from the King County Health Department, and both Dave Bradley and Pete Kmet from Ecology were invited. There was someone there from the City of Kent, I believe, and/or the City of Seattle. The Midway Landfill was actually owned by the City of Seattle, but it was within the city limits of Kent by the time all of this was occurring.

MM: Can you give me an inside picture as to what thoughts were going through your mind when confronted by that many people—600 people—realizing you were about to take on the public?

JR: Well, I was just wandering around listening to people, being in the audience. I went there not wearing a nametag or saying that I was with the Department of Ecology. I was there anonymously, so I wandered through the crowd, absorbed what was going on, and listened to the questions that people were asking. Of course, I was listening to the answers, too, because I was really new to this. I was learning what was happening with the landfill, and I was learning the Federal Superfund Program, because this work Ecology was doing was for the EPA under the Federal Superfund Program.

MM: What was the relationship between Ecology and EPA, since Midway was a Superfund Site, which comes under federal jurisdiction?

JR: We got pass-through funds is how it worked. Ecology helped because the Region 10 EPA couldn't work on all the federal Superfund sites throughout the region because they didn't have enough staff to work on all the sites. The program was set up to have federal funds be passed on to the states to do much of the actual cleanup work—and to hire consultants to do cleanup work. At the time of that first public meeting, I was learning that program, plus what was happening at Midway. Of course, right away it was obvious there needed to be a way to get information to people so they knew what was going on, what the danger level was, and what the agencies were doing to help reduce the danger. I needed to meet with citizens in the area to find out more about their concerns.

MM: And, at that point, January of '86, did you feel that, in terms of safety, the immediate danger had been reduced or eliminated?

JR: No, they were still working toward reducing that danger.

MM: Given the nature of the crisis, still in the early stages, what was your strategy and how did you organize to begin your work with public involvement?

JR: Ecology had created the Midway Landfill Team—people at Ecology working on the project. There had been a commitment by the program to put fact sheets—information

sheets—out to people weekly, because citizens in that area needed to know what was happening. I don't know that there's ever been that same level of effort in putting out fact sheets to people. There was a huge effort, and to put it in more context, we did not have computers on our desktop in 1986 like we do now. We were handwriting these fact sheets, taking them to a Text Processing Center in the department, and dropping them in the pile with everybody else's. Then it was typed up and given back to us. So, to put these out weekly, to get them written up, edited, and get our team to review them to make sure they were technically accurate but still written in a way that people from the general public could understand them, was quite an effort.

The more Ecology tested, the more we realized how far the gas had spread, so the boundaries kept getting bigger. So, we knew we had to answer some basic questions: What danger is there, How many people have been affected? And, what were the City of Seattle and the state Department of Ecology doing to help reduce that danger? The primary action taken was drilling wells and pulling the methane gas out of the ground. We called those gas extraction wells. The early fact sheets listed where we and the City of Seattle were in the process of drilling gas extraction wells, the projected date we'd be done, and where the next one would be drilled. Once we started operating, we gave them a sense of how much gas we were pulling out of the ground and if we were seeing a reduction in the gas in the area around the well or in people's homes. As you look through the fact sheets, you can see that progression—people who had measurable methane gas in their homes, and then didn't.

MM: I imagine that it's a positive experience for people to be made so aware of the process, but at the same time, I wonder, in letting people know what you were doing, did that increase citizens' concerns?

JR: What we did have happen was that I got a phone call from an environmental activist associated with CAML, Citizens Against Midway Landfill, who said that people were afraid to have gas extraction wells in their neighborhoods. They were afraid for their safety and what might be coming out of the stack, what might be in the air. I was told they were planning to stand in front of the drill rigs and not allow them to drill the well. I said, Oh, my goodness, stopping the gas extraction well wouldn't be good because in order to make it safer, we needed to get the gas out of the ground.

MM: Can you tell me about the citizens groups and their relationship to the landfill issues?

JR: There were two main citizen groups, CAML, and LIFE, Landfill Information for Education. CAML was mostly on the west side of the freeway and LIFE people were mostly on the east side of the freeway. The people on the west side of the freeway lived nearest the landfill. They were older neighborhoods. They'd been there for a long time, and a lot of the people in that area had been concerned about the landfill before it was actually put in and had been interacting with the City of Seattle for a long, long time. The people east of the landfill were in much newer residential areas, across the freeway from the landfill. The landfill wasn't something that was on their mind until all of a sudden there was methane gas under their homes.

MM: So, when you received the call informing you that citizens were planning to bar the drilling, how did you respond?

People were afraid; it was an honest fear for their safety. Here we had wanted to do something to make things safe, but people were concerned that the very thing we were doing to make things safe might be less safe for them. At that point, we knew we needed to do something more than what we had been doing.

JR: People were afraid; it was an honest fear for their safety. Here we had wanted to do something to make things safe, but people were concerned that the very thing we were doing to make things safe might be less safe for them. At that point, we knew we needed to do something more than what we had been doing. We didn't want to repeat the 600 people in a gymnasium, where people would be really scared and upset, and having to shout out questions. That's hard for an exchange. We had wanted to get something organized where the agencies and people representing the citizens groups could get together in a group that was small enough for us all to dialogue and have an exchange of information. We decided, once we got this information about their concerns about the gas extraction wells, this was the time we really needed to move on that idea. We contacted the various agencies and the citizens groups and invited people to this meeting. We ended up calling ourselves the Midway Action Group. Actually, word had spread a little bit farther then we had planned, and so, at our first meeting—held at a meeting room at the Presbyterian Church in the Midway area—a lot more people showed up then we had anticipated. There were over 30 of us in this little room, and I had planned for about a dozen. The night of that first meeting, I was acting as moderator. I remember thinking I needed to do some mental shifting as to how I was going to address a group of this size. So, knowing that people needed to talk about what was concerning them, I said, okay, for this meeting what we're going to do is, we want to know your concerns. So, for this whole first meeting, which lasted a couple of hours, David Bradley and I listened, took notes, and asked clarifying questions. We had a lot of people share their concerns. Then, we set up another meeting to follow that one pretty quickly, like the next week. Between those meetings, Dave and I wrote out what we heard as people's concerns and then edited it to try to make it concise and reflect what we heard people saying. At the next meeting we passed out copies of that and said, we want to go over this and make sure we heard you correctly. We still had a lot of people attending and we wanted people to feel included. I specifically didn't want Ecology saying there could only be so many people from the citizens group, when all these people were interested and concerned.

Then a really cool thing happened during the second meeting—citizens there started saying, you know, this should be a smaller group. I was so glad that they had the sense that this should be a smaller group, and they were really involved in coming up with having two people from each entity, so two people representing CAML, two people representing LIFE, two people representing Ecology. Not every entity had two people representing them each time. In fact, our meetings usually included eight to 10 people, but the entities represented usually included people from the Kent Fire Department, the City of Kent, the City of Des Moines, and then Kent Solid Waste Task Force, the Seattle Mayor's Office, Seattle Solid Waste Utility, Seattle Engineering Department, Office of Community Affairs, the Seattle King County Department of Public Health, and then we had a consultant to help us with some public involvement things.

MM: If people need information, what's your intent in listening, in spending those first two meetings listening and then repeating back to them what they've told you?

JR: It shows them that we care about their concerns. I learned later, taking classes in risk communication, that one of the main ways that an agency can improve their credibility and improve trust is to listen. We found this out in the middle of this crisis by what we practiced and what worked. People need to say what is of concern to them, and they need to tell it to someone who's in a position to do something about it, then they need to know that those people actually accurately heard them. It's really empowering, it really helps open that dialogue, and it really builds trust.

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MM: So, what's the shift in the group in their responses to the situation after being heard?

JR: Typically they're more likely to come to the agency if they have a concern. They're more likely to believe what we say. There still are tensions. If there's a problem, people often want things to happen more quickly then the regulatory system was set up for things to happen. It also lowers their intensity so they're able to talk about things more clearly, and that helps the agency. Otherwise, we can't respond to them, we can't do anything to alleviate their concerns.

MM: It sounds like the process separates their emotions from the issues. Is it difficult for you to respond to emotion, but easier to respond to the issues? Is that it?

JR: It's important to respond to both the emotions and the issues. You respond to the emotions by listening and showing that you're listening. Once you've done that, you move from a citizen saying the process is a problem. You move from that to, OK, now that I know that you're listening to me, let's do something about the real issues. The health and safety issue, which is a real, serious issue, becomes the problem that both of us are working on.

MM: So, what happened to the resistance to the gas extraction well?

JR: Ultimately it came down to the citizens saying, we're really concerned about health effects from the gas coming out of the stack, and the technical people saying, the levels are low enough that they aren't a health risk. People wanted something that filtered out the chemicals, and that answer was carbon absorption, which is basically big containers of activated carbon that the emissions go through and then the toxic chemicals adhere to the carbon. The technical people were saying, well, this really isn't needed because it's not a health risk, and the citizens were saying, we're really afraid for our health. At that point, I asked how much would it cost to put these activated carbon units on the wells, and it was really a relatively low cost—in the neighborhood of maybe $500 a well. As moderator I acted neutral, so I asked about putting them on. And the citizens said, if you put them on, you know, we're OK, so the group said, well, OK, it sounds like a good idea, let's go ahead and put them on. We actually wrote up an issue paper. It was the only issue paper the

group put together. It was actually issued on April 1, 1986. I was a little concerned about the date, but we wrote up this issue paper and took it back again to the group, and everybody said, yes, this is what we agreed to, and they went ahead and drilled the well.

MM: Did you have any models for public involvement that the agency had done before this time in 1986, or did you feel your techniques for public involvement were developing as you went?

JR: Many of the things that we did at Midway Landfill had never been done with the agency, not at the level we were doing. There was public involvement being done, but this was a shift. You know, there was a big shift occurring in the '70s and '80s. Before 1970, government was kind of like a parent. They made decisions and they did things. Sometimes they would let people know, and sometimes not. Then we started seeing a big shift, people wanting to be more involved. One of the shifts that happened was the National Environmental Policy Act of 1969, which is what first required Environmental Impact Statements (EIS) that must go out as drafts for public review, so people can comment. Before that, the public could review documents, but those documents, usually technical documents, weren't put together in a form that could readily go out to the public. The EIS was put together in real-people language, so more and more people could understand and get involved. Then, in 1971, the state of Washington also adopted a State Environmental Policy Act.

MM: Why was it necessary for the state to develop their own Environmental Policy Act when you already had a federal act?

JR: The federal act covered decisions by federal agencies. What we needed was something that covered decisions by county, state, and local agencies that required there be some kind of evaluation of environmental impacts before a city or a county or a state agency could issue a permit or make another decision. So, that was one way we started to get more public involvement. Then with Love Canal reaching the national level, and the initiation of a federal Superfund program, that brought about a much bigger requirement for public involvement.

MM: Can you remind me what Love Canal is?

JR: The Love Canal incident happened back East in Niagara Falls, New York. Hooker Chemical Company had been operating in the area, which had dumped and buried their hazardous waste. Then they sold the property, and people built houses and a school adjacent to this contaminated canal. People were becoming ill, and children were suffering birth defects. Citizens raised awareness and, as it ended up, the federal government came in to help correct the problem, which drew national attention in the late '70s, early '80s. That's what prompted legislation for the federal Superfund or CERCLA, which is a clean-up program for contaminated sites, with requirements to go out and interact with the public—to have their comments and feedback—before the EPA could come up with a proposal to study the extent of contamination, and a proposal to clean up the site.

MM: So there was a precedent for public involvement, especially in regard to superfund sites and a need to work against the distrust of public agencies, which, if I remember correctly, was part of the problem with Love Canal, at least initially—an unresponsive government?

JR: Yeah. Since Midway Landfill was a federal Superfund site, public involvement was required. Typically, one aspect of public involvement is to deal with the distrust of public agencies—both the general distrust and any distrust that arises due to government activity or inactivity on a specific site. For example, there was some distrust regarding the Midway Landfill because residents had trouble getting information initially, but the most important part of public involvement is to ensure a dialogue, an exchange of information, between the agencies and the public. Actually, an example of how distrust played out with Midway Landfill had to do with the Midway Action Group initially. Some of the citizens called it the Maggot Group. We hadn't thought, when naming ourselves, that the acronym would be MAG, leading people to think maggot. But that name and their distrust went away after people realized the kind of work that was being done in the group. We were quite effective in bringing people together, and one of the positive things about it was that within those meetings people could be very open and say what was on their minds. For example, they didn't have to worry about the media being there, quoting them or misquoting them.

MM: Did you not allow the media?

JR: No, we didn't allow the media. We actually had a request from one of the local papers; one of the smaller papers asked to be present at our meeting. I said I needed to talk to the group. The group as a whole, including the citizens, said, we don't want the newspaper here. We all agreed that any of us could talk with them after a meeting, but we wanted to be able to talk with each other without the media being there. People were pretty intense in these small meetings, and they said whatever they wanted or needed to say, sometimes not watching their language. They felt they could be honest about what they were asking and what they were saying in a way that they didn't have to watch their words and be worried about the news media being there.

MM: If the media approaches you as you walk out of the meetings, or anywhere else, are you at liberty to speak to media representatives, or do you need to clear that with the agency's Public Information Officer first?

JR: I can talk with the media. The way the agency is set up, the Public Information Officers are the main, professional connection with the media. They're the ones that have the extensive experience working with the media, but they work with employees to put together press releases or help them plan ahead on how to talk with the media. As I remember, a lot of people found out what was going on with Midway Landfill because of articles in the newspaper. The media can be very helpful. For example, they often respond to an agency press release by publishing it whole, or in part, or by contacting the agency and asking questions and learning more.

MM: What, if any, were the other concerns the public had in regard to the Midway Landfill?

JR: Besides the health and safety issues, the biggest issue was the ability to sell their homes at a fair price. That was very, very high on people's concern list. There are always people who, in any neighborhood, are selling their homes because people move. In the Kent neighborhood, there were people who already had their homes up for sale and were having trouble selling them after the methane leaks became known. So, the City of Seattle put together what they called the Good Neighbor Program. Basically, if the home sold at a price that was a certain amount less than the appraised value, the City of Seattle would pay the

difference. If the house was on the market for a certain length of time and the house didn't sell, then the city would buy the house and eventually sell the house itself. This was an innovative program on the city's part and it did help to bridge the costs between what a home sold for and what it had been appraised for.

MM: After your work on the public involvement aspect of the crisis was over, how did you feel?

JR: I ended up feeling like I had been through a positive experience, even though there were a lot of times it was really stressful. About a year later, in 1987, we had a public meeting, which was held at the same time the city had started the formal studies—part of the cleanup process called remedial investigation—to determine the extent of the contamination, which, in this case, was overseen by Ecology. So, we were having a public meeting for that, and about 20 interested people came. Now think about a year before—600 terrified people in a gymnasium. So that means that the information exchange and the public involvement program were working. It was a very different experience. If we hadn't done all the public involvement that we did, and that the City of Seattle did, then we would have still had a huge meeting where people were coming in, very afraid.

MM: Is there anything that you would do differently if you could return to the scene 18 years later?

JR: One thing that would have been nice, if the agency's budget could have handled it, would have been to have one person working on public involvement over the first couple of years to provide more continuity. I was initially spending between three-quarters to all my time on Midway, and then I had other projects that really needed some attention, so we got an intern position and the interns did good work. At the same time, there was a changeover for the public, and then a learning curve for the interns. With a state agency, the Legislature sets how many staff you can have—it's not like a private business. You can't just go hire more people because you need them; you have to work within the amount of people you're allowed to have. The agency is always doing a balancing act.

On a personal level, some of the things I would have changed, if I'd had the chance, turned out to be really positive. It's like what happened at the Midway Action Group's first meeting. If it had happened like I'd initially planned, with two representatives from CAML, two people from LIFE and two people from each of the agencies, I think it would have been fine. But the way it happened, there were more people who actually got to say to us what was on their minds. I guess that's one thing with public involvement, you never really know for sure what things are going to work the best with that community, and even once you think you really know the community well enough to plan, you never really know how well it's going to work until you try.

Waste Not Washington

An interview with Chris Chapman
September 23, 2004


Chapman

Position held at time of interview:

Policy Analyst, Hazardous Waste and Toxics Reduction Program, Washington State Department of Ecology, since 1997

(Employed by Ecology since 1985)

Education:

- Bachelor of Arts in Political Science and Environmental Science, University of Washington, 1979

Maria McLeod: Tell me, Chris, when did you become interested in solid waste, hazardous waste, and recycling?

Chris Chapman: I didn't actually study solid waste in college. I studied environmental science and political science. Though, growing up, my dad was always very big on recycling, so I grew up with that, living in Seattle. Then, when I was going to college, I ran the dorm recycling program. After college, my first job was as the executive director and lobbyist for a citizen's organization that focused on waste reduction and recycling issues. At that time, it was called Washington Citizens for Recycling. It's now called Washington Citizens for Resource Conservation. They still exist.

MM: So, that was in the early '80s when you started working on issues of recycling. What was happening in the state of Washington? Was there mandatory recycling?

CC: No, not at all. In 1980, the organization of Washington Citizens for Recycling got going after the Bottle Bill had failed in 1979. It was on the ballot, and it failed for the second time. So there was no bottle or can deposit legislation. There were enough people who had been committed to that cause who said, gee, we might not have gotten this legislation passed, but we think it's an important issue to work on. At that point, there were a few buy-back recycling centers that would take things like glass beer bottles and aluminum cans. There was a little bit of cardboard recycling by a few of the larger stores. By '85, there were very small sections of Seattle and Bellingham with nonprofit curbside recycling programs. As far as the state, that was it.

MM: So, what kind of impact did that have on landfills? Was the state burdened with excess trash?

CC: Well, at that point in time, it was a very different situation. Almost every county had its own landfill. Some of them were privately owned and operated, but they would still be in the county. Right now, there are only about 18 municipal solid waste landfills across the whole state. The situation is totally changed. In the past, some counties had several landfills. King County certainly did, but there were other even smaller counties that had

two or three landfills. Originally, way back when, there were open burning landfills where people threw their trash into a wetland or another area where it either would spontaneously combust, or it would actually be lit on fire as a waste reduction measure. When I joined the Department of Ecology in 1985, my boss then, Avery Wells, told me stories about some of the early landfill days. He's since retired, but he often talked about—and this has always made a big impression on me—the Hawks Prairie Landfill here in Thurston County, right by the freeway. He said that one day it was burning and the winds shifted, and the smoke was so thick that they had to close I-5 because people couldn't see.

MM: Was it an intentional burn of that landfill?

CC: I don't know if that was an intentional burn or if that was an accident, or spontaneous combustion. They didn't do daily cover back then. That was a requirement that came with the first landfill standards of 1972. So people didn't necessarily even cover up the landfills with dirt. It was just an open pit of garbage. So, you know, if you have a compost pile that gets heated up during decomposition, it can occasionally catch on fire. Well, it's the same thing.

MM: So, you started working for the Department of Ecology in '85, the year that the Midway Landfill incident, methane gas problems and resulting evacuations occurred. The landfill had been put on the National Priorities List as a nominee in 1984, I believe, and then this methane gas problem happened. I wondered about that and similar incidents that have happened during your time here. What's the link between those incidents and the work that you've done?

CC: I certainly think that all the publicity about such things, like the Midway Landfill and the garbage barge increased awareness.

MM: Remind me about the garbage barge, where did that occur?

CC: In 1987, the garbage barge circled from Islip, Long Island, to Mexico and back, looking for a landfill or some solution, floating around for a long time, not being able to find a home. It ended up having to return to New York, where it started. So there was a lot of publicity about the problems with landfills. You also have to put this in context. We'd been through the era of the energy crisis, gas lines, and shutting off lights. President Carter got on TV, put a sweater on, and told us to turn down our thermostats. There was concern that we were using up resources and we were just throwing them in the landfill. That was the time when we were all more concerned about how much we were using our electricity and gas.

MM: So, all this publicity, this raised awareness, paved the way for waste management reform?

CC: Certainly, people were concerned about the resources in the garbage and the unsightliness of these landfills. I mean, when you used to drive by the Midway Landfill, for years after it closed, it stunk. You could smell methane. I used to drive up there from Olympia to go to the airport and, I swear, for the first five years after the landfill closed, I would be driving along, not paying too much attention to where I was, and then I'd smell Midway and realize, OK, now I've got to get off at the next exit to go to the airport. That was always a pretty strong odor. But regarding public awareness, there was also the worry that

we were going to run out of landfill space. It was getting hard to site landfills. There were a number of landfills, not only Midway, but something like a flat quarter of the Superfund sites, that were landfills. There was certainly this awareness that, boy, landfills cause problems; they've been mismanaged. So, isn't there something else we can do with our garbage, and, obviously, there was recycling.

MM: So, how did the recycling program that you worked on for the Department of Ecology come into being?

CC: Well, the first legislation that passed actually happened before 1985, when I was working for Washington Citizens for Recycling (WCFR). We worked on amending both the Solid Waste Management Act in the state, and the Hazardous Waste Management Act. Those are two separate laws. On both of those we put in what the priorities were regarding how the waste should be managed, with waste reduction as the top priority and the second priority, recycling. Prior to that there wasn't a lot of direction in the law itself. I wrote those amendments for Hazardous Waste in '83, and I believe the Solid Waste one was done in '84, and then successfully lobbied them with the state Legislature on behalf of WCFR.

MM: So, how did counties manage their solid waste?

CC: Counties are required to do the Solid Management Plans. They are required to use what was called a Solid Waste Advisory Committee. They existed in every county. The committee is composed of one of the local haulers and usually a local citizen, and a variety of other people who are interested and concerned about solid waste. They will include someone from the big cities in that county and someone from the small towns or cities in that county. For example, in Thurston, it might be Olympia for the big city and Rainier for the small town or city. If there was a private landfill operator in town, they might be represented. Then, if there is any private recycling in the county, they will put the private recycler on the committee. So, they have these committees of 10 to 15 people who are required to advise the county on how they should manage their solid waste, and also to advise the county on how they should update their Solid Waste Management plans.

MM: So, how did Waste Not Washington, the program you worked on for Ecology, come about, and what legislation led to it?

CC: Well, all the county governments in Washington state are required to do solid waste plans that say how they're going to manage their garbage for the next 20 years. It was way before '85, sometime in the '70s, that this practice went into effect as a state law. And so, when I was hired by the Department of Ecology, my boss asked me to rewrite the planning guidelines so we would incorporate those solid waste management priorities in order to get local governments to move, as opposed to saying, "Oh, we're going to have a landfill and we're just going to throw trash in the landfill." I mean, we were at the very beginning stages, when's people's attitudes were, "Whoa, waste reduction, recycle, that's a great idea, but ..." Then Representative Art Sprinkle got involved. That's why the Waste Not Washington Act was also called the Sprinkle Bill. He was a legislator who only served for, like, two sessions, so four years. He was from the Everett area and he was a doctor, an allergist, by profession. I mean, he wasn't at all a garbage person, but there had been a lot of controversy locally, especially in the Seattle, Snohomish area, around the management of solid waste. There had been efforts to persuade King County to have an incinerator. Publicly, there was a huge amount of opposition to it. And there had been a landfill built in

There had been efforts to persuade King County to have an incinerator. Publicly, there was a huge amount of opposition to it. And there had been a landfill built in Snohomish County that was considered state of the art at that time, but they were never able to open it because there was such controversy surrounding it. So, within King and Snohomish counties, there was a huge amount of awareness and publicity about waste management.

Snohomish County that was considered state of the art at that time, but they were never able to open it because there was such controversy surrounding it. So, within King and Snohomish counties, there was a huge amount of awareness and publicity about waste management. When Representative Art Sprinkle got elected, he decided that he wanted to do something about the fact that we were throwing all this garbage into landfills. So, he was the one who got legislation asking Ecology to do the Best Management Practices study, which I was the Project Manager for. Then he came back the following year and got legislation for the Waste Not Washington Act, which required a lot more waste reduction and recycling of the state. He used the Best Management Practices Study to say, Hey, you guys, look, curbside recycling in urban areas is economical, composting in urban areas is economical, having more drop-off centers for recycling at any of the rural transfer stations, that's economical. We need to do this as a region. We need to make this happen.

MM: What impact did the 1987 King County proposal to build several incinerators in response to increasing the shortage of landfills have upon the state Legislature passing the Waste Not Washington Act in 1989?

CC: The citizens were concerned about these incinerators because it was known that these incinerators generate toxics, air toxics. It's like one of those things, you don't want a landfill in your back yard, and you certainly don't want an incinerator in your back yard. Then King County said, well, if we build these, we're going to build them in our county. And if you look at King County, I mean, somebody was going to get the smoke, right? That was pretty obvious—a no-brainer. They had started to identify sites. So, you can imagine, people came out of the woodwork. And, one of those responses was, we don't need these incinerators, we haven't yet tried recycling. They knew if they built the incinerators, they'd have competition for that material. Usually incinerators are run by a private entity, and they have what's called a waste-flow contract. They tell the city, or whoever, you must promise us, for example, 300 tons of garbage a day. You have to pay us—even if you don't give us 300 tons—you'll have to financially reimburse us because we have a contract on the other side to sell that energy we capture when burning, and we're only going to operate if you guarantee us that much garbage. So they lock the county or whomever into generating a certain amount of garbage. There's no incentive for recycling above the level of the waste flow contract. In fact, there's a disincentive to do waste reduction or comprehensive recycling. So, this was a good argument to work toward another solution.

MM: That reminds me of another question I want to ask you, and that has to do with the market for recyclable materials, recycled goods. That is, is there ever a lack of a demand for

these materials you're recycling? And, if so, does the lack of demand ever impinge upon a community's desire or effectiveness to implement these recycling programs?

CC: Certainly, yes, market definitely is an issue, but part of the whole thing with the markets is, what can we do to help it along? It's sometimes the chicken and the egg. What can we do to support the markets? Composting is a great example. People buy a lot of supplements for the yard, and they buy fertilizers and they buy compost-type products, all this stuff. But there's a way you can make compost out of yard waste. You have to get it to the market and get people to buy the products. So, with the person who always bought mushroom compost, can you get her to buy yard waste compost? How can you get her to do that? One of the things we've done a lot of, for example, is to urge another state agency, in this case the Department of Transportation to buy composted yard waste from local governments. DOT uses a huge amount of compost and other products along the freeway, because part of their job is to manage the freeway lands all up and down I-5. Usually they have private contractors put the stuff out, and they become familiar with the product, and they feel more comfortable with the product, so it helps the market grow over time.

MM: What about other recyclable materials—paper, glass, metals?

CC: Some of them, like, for example, aluminum—aluminum is incredibly valuable as a resource. There's no place that you can't recycle aluminum, and even if you have large transportation costs to ship that aluminum to where it needs to go, it's still going to be economical because it's so incredibly expensive to make aluminum. So it's an incredibly valuable resource. But, for plastics and glass, it's the opposite. For example, glass is heavy to transport and is made out of cheaper materials, mainly sand. So, it has been hard to get good markets for glass and plastics, and that has been a real impediment in terms of recycling. So, unless the recycling facility is situated very close, it's cheaper to make new glass than recycle it. This, of course, ignores the societal costs of landfills and the resulting pollution. In Pierce County, there is a company that recycles and uses the tin from all the steel cans that are recycled. This company existed prior to any curbside recycling programs. So, for people in King County, Pierce County, Thurston County, Snohomish County, the markets are there. But the further you get away from this area, the more you have to pay for transportation, then the less valuable that material becomes. For example, there are more markets for certain types of glass than others. I think there's always been a surplus of green glass. Our wineries aren't big enough to support the market for green glass. On the other hand, we traditionally have a lot of breweries, and so we don't have an excess of brown glass. Also, its OK to have some green glass in with the brown glass, but not the opposite—too much brown glass in green glass will contaminate it and make it unusable.

So, unless the recycling facility is situated very close, it's cheaper to make new glass than recycle it. This, of course, ignores the societal costs of landfills and the resulting pollution.

MM: What about newspaper recycling? I read that only 30 percent can be recovered, that 70 percent of the paper is lost in the process. Is that true?

CC: I'm not sure about the exact numbers, but I do know with newspaper, they have to de-ink it because otherwise the paper would become darker and darker over time. With newspaper it's low quality paper to begin with, and so the fibers become shorter and shorter and then the paper becomes less durable. Newspaper has a limited life in that sense. What they do is they keep putting more virgin paper into it, so it is true you can't just keep recycling a newspaper forever—the fibers get too short. But other paper lends itself to more recycling opportunities such as office paper, that's pretty good stock, and phone books are the best. Paper recyclers love the phone books because they're such a high quality paper.

MM: So, I'd like to go back, historically, for a moment. You mentioned that Waste Not Washington came out of the Best Management Practices Study. You mentioned you'd been project manager for that, what was the aim and scope of that study?

CC: Well, prior to that study, probably late '70s, early '80s, the City of Seattle had contracted for a study to be done on curbside recycling. At that point they had concluded that curbside recycling was uneconomical for the City of Seattle. The Best Management Practices study looked at the economics of a variety of different kinds of recycling programs such as drop-off recycling centers, curbside recycling and composting of yard waste. The study included the concept of Avoided Disposal Costs in its analysis of programs. So, for every ton of recyclables, that same ton of recyclables could go to the landfill or could be recycled at the recycling center. If it goes to the landfill, you're paying per ton to get that disposed of. Over the years, as landfill regulations got stricter, partly because of the Midway incident and partly because of previous other problems, it became more expensive to operate a landfill. Tipping fees are what's charged when somebody, as an individual or a garbage hauler, goes to the landfill and they pay to get rid of their garbage. When landfills first opened up, they were free or they were very, very minimal. Now tipping fees are close to $100 a ton, depending on where you are, and so it makes a big difference. The tipping fees increased significantly as environmental controls began to require increased attention to siting, design, operation and maintenance costs, as well as closure and post closure costs. When weighing the economics of these recycling programs, you also need to consider the avoided costs of not having to pay for disposing it.

MM: It sounds like a good incentive.

CC: Yes, it's a good incentive. The Best Management Practices Study found that certain types of recycling programs in certain areas not only would be better for the environment, but also would be cost-effective. The type of programs that the study recommended, in urban areas, were curbside recycling and then, in rural areas, drop-off recycling. It also recommended more yard waste composting centers. At that point, we did not have a whole lot of composting, and Art Sprinkle was very interested in that. Now we have all these private composters in the state and we have a thriving compost business. The state is now looking at what can be done to increase the composting of food waste.

MM: What was the work that was happening behind the scenes at this time?

CC: During this whole period of time, from 1987 to 1989, there was what we called the Sprinkle Committee, but was officially called the Joint Select Committee on Preferred Solid Waste Management—the legislative committee looking at this whole problem of what to do with their solid waste. Representative Sprinkle had gotten a lot of local government folks, and a ton of other people interested. This committee had ongoing meetings, studying

everything from what should we do with our waste tires and batteries, to what should we do with our overall garbage. There was a huge amount of effort.

MM: So, when you conducted the Best Practices Management study, did you hold any meetings with concerned citizens?

CC: Actually, Representative Sprinkle ran all the meetings, but I attended a lot of those. I have to give it to Representative Sprinkle; he's a very patient man. We actually had one meeting—I believe it was in Spokane—and I can still remember, the representatives sat at the front table and people would come before them and testify. At this particular meeting, they took testimony for four hours straight without a break. There's a lot of activism around this issue in Spokane. There are all the people who are opposed to the incinerator, and, in general, there's a very strong environmental group in the Spokane area that works on waste issues.

MM: In the work you do, what do you think, even in a general sense, is the function of citizens groups? How do they help shape or direct the work you and others like you do here at Ecology?

CC: Well, I think they play a huge role in helping shape the legislation and policies of Department of Ecology. The agency has always been in this balancing role, listening to what industry and some of the other business interests have to say versus what the citizens have to say. I think if we didn't have the citizen groups promoting environmental legislation of various sorts, we would not nearly have the progressive legislation that we do for the environment in this state.

MM: What was that like for you to go from directing the Washington Citizens Group for Recycling to joining the Department of Ecology, becoming a state employee?

CC: Some people joked with me because at some point when I was a lobbyist and executive director of the Washington Citizens Group for Recycling, I criticized the Department of Ecology for things they did. So, I remember when somebody came up to me the first week or two after I started here at the Department of Ecology and said, "We've got the fox in the hen house, now." But when Avery Wells hired me, he had said, "Chris, I want you to work on trying to get the counties to do more recycling," And I said, "Well, that's exactly up my alley, and that's what I want to do."

MM: So, Waste Not Washington comes on board August of '89. Washington Legislature passes Substitute House Bill 1671. What paves the way for this bill?

CC: Here's an example I pulled out of my files from November 1987, Joint Select Committee on preferred solid waste management. Representative Sprinkle held a series of these meetings, and this is an example, held at a SeaTac office. Representative Sprinkler brought in nationally recognized experts to talk about issues of waste management. For this meeting he brought the director of Solid Waste Research for a nonprofit organization out of New York, and this other speaker was co-director of the Institute for Self Reliance in Washington, D.C., so he brought in these two national speakers to come and talk to the legislators.

MM: He had to convince the Legislature—before they passed the Waste Not Washington Act, house bill 1671—he had to convince them that it's indeed feasible?

CC: Yes, he did a lot a lot of research and a lot of talking to people about the importance of this issue. For example, he reviewed a cost analysis for solid waste, City of Seattle, September 10, 1987, and because of the work they did on landfill closure costs, he pushed that concept. For years and years and years people didn't think about the fact that there's a cost related to closing landfills.

MM: So, he really pushed his cause?

CC: He did a huge amount of work on what he thought the problem was. In this memo he writes, "Building incinerators to reduce the volume of trash will cost as much or even more than high-tech landfills. Superfund cleanup and liability costs assigned to the state cannot yet be estimated but may be astronomical. Broadly, I see the community's overall goal to be redefining the roles of waste reduction, recycling, landfilling installation. The contexts are vastly different economic arena we now find ourselves in. We must have the discipline to view the issue as a clean slate and not be shackled by the previous perceptions and biases on the issue. We must identify and correct those obstacles that currently inhibit local government's ability to manage waste safely and effectively. This is an urgent issue that begs for strong, well thought out leadership as we currently stand at a critical crossroads in this state. The paths that we choose over the next six or 12 months will largely determine the cost-effectiveness of the Solid Waste Management for the next 20 years. We can and must seize the opportunity." Art Sprinkle came to the Legislature, this is what he did, and then he left the Legislature after just four years. Some legislators are just introducing legislation for the first time after four years.

MM: And so, he convinced the Legislature; he helped shepherd that bill through. Is that when recycling became mandatory, after the results of his efforts, after the Waste Not Washington Act was passed?

CC: Recycling is not mandatory in the sense that people are required to recycle. However, certain local governments are required to offer certain types of recycling programs. Washington state, as you know, is a very big and very diverse state. If you're looking at the City of Seattle versus rural Washington, as we did with the Best Management Practices study, you'll find it's not going to be economical for those rural areas to have mandatory recycling. They're very far from the recycling markets. Most of those people are so spread out they don't have garbage pickup; they just self haul to the local transfer station. Curbside recycling was only required for the urban areas.

What the City of Seattle started to do—this was actually controversial, believe it or not, when they first did it in the late 1980's—was to make it economically in people's interest to recycle.

MM: How, at that time, did you get people to switch from never having recycled while living in these urban settings, to adapting to curbside recycling, to actually separating out their garbage? Are they fined for not doing it? How does that work?

CC: Other places in the country have fined. I don't think there's any local government in this state that fines, though I think there are certain things that you're not allowed to put in your garbage. I think the City of Seattle is the strongest one in terms of saying you cannot put certain things in your garbage. You cannot put yard waste in the

garbage can, for example. What the City of Seattle started to do—this was actually controversial, believe it or not, when they first did it in the late 1980's—was to make it economically in people's interest to recycle. So, you get a mini can, and if that's all you fill up every week, you're paying significantly less then if you get two cans of garbage. I can remember when I was growing up, everybody had those two big cans of garbage. You just filled them up every week, and that was what you did. The reason it was controversial is that the real cost of garbage pickup is simply having that truck come door to door to door. The incremental cost of that much more garbage is not significant. But the city said, it doesn't matter. We've got to get people to do the right thing. So not only are we going educate people and have a big campaign, but we're going to charge them. So, if you have two garbage cans, and you fill those up every week, you're paying a lot, lot more money than you are if you just have a mini can or one can.

MM: Part of that act, in addition to waste reduction and recycling, was education. Did you generate educational materials? How was that part of the Waste Not Washington Act carried out?

CC: The Department of Ecology has always created educational materials. For this, we'd given out grants to the local governments to do education, but by that time we were running out of money. Representative Sprinkle had heard from local governments that they needed money. So he put on a temporary fee, a tax, to fund these programs, and then Department of Ecology got money too, for ourselves. Out of this tax we were able give money to local governments for things like the local educational programs, so a lot of the education was done locally because they all had their own system for how they were doing their own curbside recycling. There was also money from the Model Toxics Control Act.

MM: Didn't the Model Toxics Control Act generate money by putting some kind of tax on petroleum?

CC: Basically, the Model Toxics Control Act is our state Superfund Act, and that was passed by initiative in the early '80s. It gives the Department of Ecology some money. It sets up a State Toxics Account and a Local Toxics Account. We're able to give grant moneys to local governments out of that local toxics account. Eighty percent of the money comes from tax on petroleum. The rest comes from tax on toxic chemicals. So, the counties would get money to upgrade—to rewrite solid waste plans and then to do education. What many of the counties ended up doing was hiring local recycle coordinators. Of course, the City of Seattle had more than one person; they hired a whole group of people. One of the things we did to help implement this Waste Not Washington Act was to hold meetings with these local recycling coordinators, and help train them about all the different issues and what they could do. Also, that helped them get to know each other so then they could share resources.

MM: When you were training those people on issues of recycling, what kind of materials were these recycling coordinators being told citizens could recycle versus what can't they recycle? How did the methods for dealing with waste, garbage change?

CC: Well that was interesting. Each city and county chose to do it somewhat differently within the constraints of the new law that mandated what types of programs, but not how those programs should be run. The cities have a choice of how they handle their garbage and their recycling contracts. The city can say, we're not going to have anything to do with this, and, instead, ask the Washington Utilities and Transportation Commission (WUTC) to

hire a hauler and have them pick up our garbage, and the city stays out of it. Or a city could hire a private hauler to pick up the garbage, or they can decide to do the pick it up themselves, using city employees, city trucks. It's different for the counties who must use their franchised hauler, which is determined by the WUTC. What the City of Seattle did, interestingly enough, was to divide the city in two parts, the north and the south, because the city is huge. They let out private contracts, very sought after, lucrative contracts. So, they had decided to go with citywide curbside recycling. They were already doing that with garbage pickup in the south and the north. Rabanco came in and Waste Management came in, two totally different proposals, and they both won the contracts for their area. Rabanco, in the South, had the unseparated single-bin, and Waste Management, had the three-bin situation for the north side of Seattle.

MM: The red, white and blue bins?

CC: Yes, in northern Seattle everybody separates out their garbage, although I'm not sure of the actual bin colors. In south Seattle, they do the mixed recyclables. You get one big, blue container and you'd throw it all in. It goes to a sorting center and they separate it. Both Waste Management and Rabanco built their own processing centers based on the way they collected it. And Seattle is just an example. If you look here in Olympia at Thurston County—I don't know if you live in Thurston County or not?

MM: No, I live in the Bellingham area—the red, white, and blue bins.

CC: Oh, well, the City of Olympia does it differently than the rest of Thurston County. For example, they have the big blue bin, and everything goes in, and the county has the three stack bins, everything separated out. So that was part of the educational process, telling people how to crush the cans, or wash them, or separate them. There's training that goes along with that.

MM: How are those determinations made, in terms of methods of recycling, source separation versus mixed, and whatever other details?

CC: It's a controversial thing, and that's one of the interesting things you see in Seattle. The two contracts compete because they have to turn their statistics into the city and say, my program's more effective. I mean, it's smart to have these two different companies because the city wanted these programs to work, and these two different contracts build in competition in terms of waste recovery because they have to report their statistics to the city. But the difference between the two hasn't been as dramatic as you might think. What I had heard, though people don't like to say this too loudly, is that south Seattle is mainly a lower socioeconomic group than north Seattle. So the company that designed that program, Rabanco, felt that in order to get people to recycle at all, they would have better success if they told people they could do mixed; they could just throw it all in one recycling bin. They felt they'd get more recyclables if they didn't require people to do so much sorting. And that's true, you do get more. There are some people who won't separate; it's too much hassle. On the other hand, you have more processing costs, because the company has to separate it all out themselves. Then there's contamination. Some of the newspaper gets too gunky, and you can't use it, and that kind of thing. So, you end up with more waste.

MM: What about composting, why aren't people required to compost?

CC: It would be interesting to go back and study it again, but when we did the Best Management Practices Study—which is this huge, multi-volume report, at least 2 inches thick—we looked at the composting programs and realized it wasn't definitive that they were going to be cost effective. They were really new at the time, and not many people were doing it. Basically all the counties, when they did their solid waste plans, they defined what an urban area was, which was very controversial, as you can imagine. Then, in the urban areas, each locality had to study to see if composting would make sense economically or not. Here, in Thurston County, the landfill's now closed; it's now used as a transfer station. But, when it was open, there was a composting facility there and people were given the option of doing compost recycling. In my neighborhood, huge, blue composting bins are everywhere. People put yard waste in them. Now that the landfill is closed, I believe they ship the yard waste to a private composting facility in Pierce County. Almost all composting has been yard waste-oriented, not food waste, partly because there's just such an odor problem with the food waste. There are people who figure out how to manage it, but it's just more difficult.

MM: I've read that the waste composition recycling survey is part of the Waste Not Washington Act, and that it's a mandatory survey that has to be done yearly. Can you tell me about that?

CC: We're not required to do the composition study every year, just the recycling survey. Actually the recycling survey had started previous to the Sprinkle Act, but it became more important because, in the bill itself, was a 50 percent recycling goal by 1995, and which, by the way, we did not meet.

Actually the recycling survey had started previous to the Sprinkle Act, but it became more important because, in the bill itself, was a 50 percent recycling goal by 1995, and which, by the way, we did not meet.

MM: I read you had reached 40-some percent, 43.5 percent?

CC: We definitely went up, and then we leveled, and then we went down again because of the downturn in the economy. You see, a lot of recycling in the state is commercial recycling.

MM: You're not just talking about residents? The largest portion comes from commercial, so you're talking business? Do you see a slowdown in business recycling during an economic downturn because it costs them more to recycle, or what's the issue?

CC: They're just not as productive during an economic downturn; there's not as much demand for their product, so they're not producing as much. If there is less production, there is less packaging; so there will be fewer cardboard boxes to recycle for example. So anyway, we may have gone back up, but we have never hit the 50 percent recycling goal.

MM: Getting back to the landfill issue, how has recycling impacted landfills, or has it not impacted the landfills because population has increased and made up for the portion of waste that would have been recycled? What's the relationship?

CC: Well, population, of course, has dramatically increased in Washington state over the last 20 years, and the population is expected to grow more. So, in spite of the fact that recycling has grown, our waste generation is growing. On one hand, you could say, well, we obviously weren't successful. On the other hand, you can say, well, if we weren't doing recycling, we would have generated even more. Why has waste continued to grow? Most people think it's because we're an affluent country, you know, people buy more stuff, such as the growth in electronic products. Also, with a more disposable income, people buy more convenience foods. There's just more consumer foods to begin with, all those sorts of things that, back in the early '50s, people didn't have. When our moms were making dinner, they weren't opening up a ton of packages. They were getting raw vegetables and fruits, and meat wrapped in paper, and that was it.

So, in spite of the fact that recycling has grown, our waste generation is growing. On one hand, you could say, well, we obviously weren't successful. On the other hand, you can say, well, if we weren't doing recycling, we would have generated even more.

MM: What kind of work have you done with businesses in regard to packaging practices?

CC: Well, we have tried to do some work with those businesses. They're not only Washington business. For example, some are national businesses, and these businesses are getting goods from other states. It's harder for Department of Ecology to influence them. In the Hazardous Waste Program we require businesses operating in the state that generate over a 2,640 pounds of hazardous waste a year to do pollution prevention plans. In those plans, not only do we encourage them to look at the waste they've generated, but we have them look upstream to see what they can do to generate less waste. That's a very hard concept for many business owners. Some of the bigger businesses like Boeing, Nike, and Starbucks, have been able to say to their suppliers, "We're not going to buy from you unless you give us that product in a way that will make less waste."

MM: Well, with a big company like Nike or Starbucks or Boeing, that could make a big difference.

CC: Yes, and Nike and Starbucks and some of those other companies have spent a lot of time and energy developing what are called environmental management systems, which is a comprehensive, integrated and systemic approach toward the management of a company's environmental program, including waste management. 3M, Kodak, some of the national companies have done a lot, too.

MM: What I don't understand is that it must be less expensive to use less packaging. Why wouldn't businesses be inclined to do less packaging? What's the resistance to your cause?

CC: It's a variety of things. There are some counterforces in regard to less packaging. For example, one of the counterforces is the tamper resistant packaging, and that was a counter move to make products safe, to make sure that somebody's not putting something in the Tylenol, or whatever.

MM: So we don't find ourselves with arsenic in the Tylenol on the grocery shelf?

CC: Yes. So, that's a counterforce. Another counterforce is the advertising that went with it. Another counterforce is convenience. Convenience foods are usually one serving, creating more waste, and people obviously buy the Lunchables. They wouldn't sell those Lunchables if people didn't buy them. It's supply and demand. But there are a variety of things businesses have done. Aluminum cans, for example, are thinner than they used to be, and that's a waste reduction measure.

MM: Tell me about the project you're working on now, in 2004, the Beyond Waste Project.

CC: The Beyond Waste Project is a combined effort of the Solid Waste and Hazardous Waste Programs to update their state solid and hazardous waste plans. The last time they were updated was '90 and '92. So it's been over 10 years. One of the things we decided to do to update the plans was to ask people around the state, both inside the Department of Ecology and citizens and other interest groups outside of the Department of Ecology, what they thought we should be working on. We received a variety of answers in response, but the bottom line was, we've got to figure out a way where we're not creating so much waste. We've got to have a paradigm shift in our society where we view waste as resources, then we don't have waste. Waste no longer exists. So, I've been spending the last three years working on this project, and we have just finished the final plan. We have a Beyond Waste Web site, www.ecy.wa.gov/beyondwaste. We're focusing on five different areas: organic wastes, green building, moderate risk waste, industrial waste, and the data to support those efforts. We're zeroing in on a variety of recommendations for how we can, at the very least, increase recycling and waste reduction, as well as how can we fundamentally shift attitudes. We're one state, and we're trying to do this, bucking the national culture; however, we have gotten a lot of interest and support from EPA, especially out of their headquarters offices in D.C. They've been very excited, and we've received some national attention and interests from this whole effort. There's just a huge amount of commitment within the Department of Ecology. When we went out to the public meetings on the plan last May and June, we didn't have anybody that said, oh, this is a really stupid idea. People may have commented on wording or some of the specifics of our recommendations, but the whole idea that we need to get beyond waste, people supported.

We received a variety of answers in response, but the bottom line was, we've got to figure out a way where we're not creating so much waste. We've got to have a paradigm shift in our society where we view waste as resources, then we don't have waste. Waste no longer exists.

MM: I'm having a hard time imagining trash trucks as things of the past in the way that driving our garbage to the river and dumping it has become a thing of the past. Do you think it's really possible to arrive at a point where we no longer have waste?

CC: We have a mission statement that's on our Web site that says we can eliminate most waste. It doesn't say all, because someone's going to come up with one waste that we can't get rid of. And so, it's going to take us a long time, but I think we have to go there. We can't continue to keep generating more and more waste over time. It's going to be harder for the homeowner to implement this. For the businesses, it's just going to make more and more

sense over time. They can find a way to not create waste, for them it's a cost savings. If they can use another business' waste as an input for their production process, they're going to do it. As resources continue to go up, and waste costs continue to go up, it's going to happen. Solid waste, for the individual, is actually a more difficult issue. This whole consumer lifestyle we've created, and the fact that as we work more and more hours on the job—the whole issue of convenience becomes increasingly important. And I don't see that trend disappearing. Some people have said, OK, I'm going to work less hours, or I'm going be in a marriage and have one person not work, or whatever. You see a little bit more of that, but I wouldn't really say it's a huge trend.

MM: In terms of working on Beyond Waste, and taking these steps toward these goals, where did you start?

CC: We hired the same firm that worked on the Best Management Practices Study for Beyond Waste, they're called Cascadia now. And, you know, it's been a very fun project to work on. What has blown me away is that we've had these two consultant firms, Ross and Associates and Cascadia, and then we had a public involvement firm working with us as well. Everyone of those consultants, at the end of the project, said, we will continue to work with you on a volunteer basis because we believe in this so much. We just think this is such a wonderful project. The key consultants said it personally changed the way they'd looked at things.

MM: Tell me, Chris, how would you describe the work you do in terms of success, overall success?

CC: I feel like I've been incredibly successful. I suppose somebody could say I've been rearranging the chairs on the Titanic, and we're still sinking in terms of all the waste and all the consumerism. But there used to be so little recycling, and now it's nearly taken for granted that it's something you're going to do, we all do. We have more waste overall, but that trend, I think, is going to change.

Natural Steps Toward Sustainability

An interview with Lynn Helbrecht
October 27, 2004


Helbrecht

Position held at time of interview:

Sustainability Coordinator for the Governor's Executive Policy Office, Washington, since 2003

(Employed by the Washington State Department of Ecology from 1989 to 2003)

Education:

- Bachelor of Arts in Environmental Studies, University of California, Santa Barbara, 1981
- Master of Arts in Environmental Studies, The Evergreen State College, 1987

Maria McLeod: I understand you are now serving Governor Locke as the state's Sustainability Coordinator and that, prior to taking your current position in 2003, you worked on issues of sustainability for the Department of Ecology through what was then the Hazardous Waste and Toxics Reduction Program. I'm curious, Lynn, because the concept is still relatively new, when did you first encounter the term sustainability, and what were the issues and forces that elevated that concept to the attention of the Department of Ecology?

Lynn Helbrecht: It was later in my career, without a doubt, when two events happened concurrently, bringing the term and concept to my attention. One occurred during one of the previous administrations of the agency. They went through a yearly retreat and they identified three priorities for the agency. In that particular year, one of them, in their wisdom, had come up with wording that defined one of Ecology's main priorities: "to support sustainable communities and natural resources." People said, that sounds good, but what does that word, "sustainable," mean? We had a deputy director then, Dan Silver, who took this on. He was interested in exploring what that might mean for Ecology, and he convened a group of folks who had been e-mailing him saying, we like that term, Dan, but what does it mean? I was involved in that early grouping because I had been doing some thinking and some research on my own that was leading me to embrace sustainability. I volunteered to work with the people who continued to be interested, and we began to craft a sense of what "support of sustainable communities and natural resources" might mean for Ecology. That's how we started the Sustainability Team. This was probably '98-'99. We began to do some real focused work on what benefits this concept provides to the work that this agency does.

I came into sustainability through the waste world. My experience at Ecology was working in waste reduction and then pollution prevention, working in the general arena of hazardous waste and hazardous waste regulation. How we measured progress was always troublesome to me because only a small number of the toxic substances that we're exposed to are actually regulated and managed. The vast majority of toxic substances are out in the world, legally in products. Yet I was involved in this program that was making great strides in this narrow stream of chemicals. That part was disturbing to me. Then, as someone who's interested in the environment, I'm reading the news, and I'm getting these newsletters that talk about biodiversity, that talk about climate change, that talk about some of these really disturbing trends in the environment. When I looked at what we were up to, it didn't seem like we were really making much headway against that. Then, I went to a workshop in '97, and I came across what was called the Four System Conditions of The Natural Step, which originated in Sweden and was being introduced to the U.S. That was really a watershed event for me. That introduced me to a path that would lead to fundamental change.

MM: What is The Natural Step, the Four System Conditions?

LH: One of the Four System Conditions has to do with taking materials from the Earth's crust. I believe it's stated that we cannot continue to take materials from the Earth's crust and deposit them on the surface of the Earth faster than the natural world can reabsorb them—anything like heavy metals and fossil fuels. These are toxic substances that have been secreted into the Earth's crust over many, many millions of years, and we're pulling them up and exposing them. The second one has to do with synthetic substances that we manufacture, making chemicals we cannot continue to deposit in our biosphere faster than

we can safely absorb them. The third has to do with maintaining ecological integrity and biodiversity in ecosystems. The fourth has to do with meeting the needs of the Earth's people in a fair and equitable way. For the first time, the fundamental ideology wasn't about being incremental. It was that we can make incremental progress toward really fundamental meaningful goals. The goal is to eliminate our contribution of toxics to the Earth's crust. The goal is to eliminate the gradual deposition of synthetic chemicals, and yes, we're going to make incremental progress toward that, but that sets in motion a fundamentally different chain of events.

MM: Who adheres to and abides by these Four Systems Conditions?

LH: We had some companies that were early adopters of The Natural Step, like Nike whose headquarters are in Oregon. Their mission statement around this issue says that they want to eliminate their impact on climate change. We want to eliminate the production and the use of persistent toxic chemicals. That was so profoundly hopeful for me, when I heard about this, the wide acceptance and application it was having in the world. I was bringing that thinking to the agency at the same time that the agency was starting to explore what that meant, sustainable communities and natural resources.

MM: It seems if a company wants to take that on, though, they need a kind of infrastructure, and they need support from other entities in order to make that happen. They need those practices to be happening simultaneously on different fronts. How can industries realistically take on the Four System Conditions, and do you find that they can?

LH: Well, everybody's learning, but you're absolutely right; they have to be supported. That's where I personally feel that government isn't doing enough to support them. Our subsidies are in the wrong places; companies are not getting recognized for the work that they're trying to do. I've been tracking the work of Nike over years. They've been trying to do some pretty phenomenal things, but they're struggling because they're not getting the support from government regulators. They're not getting support from shareholders. They're stepping out way in front like this, but it's not a level playing field. For example, they vowed to eliminate polyvinyl chloride and PVC products, a type of plastic that uses extremely toxic chemicals in its manufacturing, but they're finding it quite difficult.

MM: What's the difference between working on sustainability issues for the Governor's Office and having worked on those issues for the Department of Ecology?

LH: Well, people answer your phone calls when you're calling from the Governor's Office. That's one. Actually, as I worked on issues of sustainability for Ecology, I began to work at higher and higher levels until I was actually facilitating a statewide advisory panel for the governor. Some of my responsibilities carried right over. The position of sustainability coordinator came about because of an executive order, which, among other things, created a requirement for state agencies to prepare sustainability plans. My primary responsibility is to help agencies incorporate these practices. But it's a very different hat to wear, working out of the Governor's Policy Office, especially in regard to how the work is done. It's more politically sensitive. It's more subject to political agenda. That's the backdrop in which we work. Still, I rely on people in Ecology because they're doing more related to the concept of sustainability than any other agency, and the technical expertise is there.

When I worked with Ecology, we had a sustainability team, 12 to 13 people. The management team was and is completely behind sustainability, certainly in concept. Now, I'm my own chain of command. At the Governor's Policy Office there's around 20 staff, each of whom has his or her own area of expertise. Someone is working on economic development issues. Next to that person, someone is working on transportation issues next to somebody who's working on crime and drugs. So, you have all this whole breadth of issues. Consequently, when you're working on your topic, you're it. So, I really rely on people at Ecology for expertise and support, as well as other agencies. We've been bringing more and more agencies into the field. There's been some agencies, like Corrections, that have turned out to be real leaders.

MM: The Department of Corrections? They seem like an unlikely agency to be linked to sustainability. What's the relationship?

LH: They've got some great people in there who've really pushed the agenda. For example, they're building a lot of new buildings, new prisons, but they've committed to building those new prisons with green building standards. They've helped set a standard for other agencies. We just signed our newest Executive Order 04-06 last week, in fact. Part of that executive order, Establishing Sustainability and Efficiency Goals for State Operations, says we're going to adopt green building standards for all state buildings.

MM: Can you explain what green building entails?

LH: The term "green building" has become a kind of shorthand for a set of standards that have come to be pretty widely accepted, incorporating environmental considerations into how you build the building, beginning with the design. There's a non-governmental organization, called the U.S. Green Building Council, who've developed what they call the LEED Standard—Leadership in Energy and Environmental Design. Using their Green Building Rating System, basically a point system, you can accumulate a certain number of points that qualify your building as a green building. For example, if you use wood that's been grown in a sustainable forest, you gain points. You get points if you use products that have been harvested or produced or processed locally. You get points for increasing energy efficiency and limiting soil erosion in construction. There are a variety of ways to gain points—using renewable energy, using energy conservation techniques, natural ventilation, daylighting. These buildings tend to be more attractive because they have a better use of daylighting, much better airflow. They've found that work and productivity is quite a bit better in these buildings as well. They cost a bit more to produce up front, but they pay back for themselves in the operating budget.

The term "green building" has become a kind of shorthand for a set of standards that have come to be pretty widely accepted, incorporating environmental considerations into how you build the building, beginning with the design.

MM: What, besides financial walls, are some of the barriers to adapting sustainable practices?

LH: We're operating under these systems and these infrastructures that want to keep everything status quo. There's a guy named Bob Doppelt, a real sustainability advocate, who teaches at the University of Oregon and who's done trainings for us. Yet, he comes from the discipline of organizational psychology and organizational change. Part of what he teaches us is that making these kinds of changes is not about saying, I'm going to build a green building, and it's not about saying, I'm going to buy paper without chlorine, that's not been chlorine bleached. It's not about saying, I'm going to use bio-diesel for my diesel fleet. Those changes are positive changes, but they're not going to make the impact you want. Instead we really need to think about the infrastructure, and start digging down into what drives us to make certain decisions.

Going back to the example of green building and state agencies is the issue of our capital budget's separateness from our operating budget. It's developed separately—different people develop it, different people provide input to it, different committees in the Legislature approve it. People are very protective of their budgets. So, if you want to build buildings that are going to cost maybe 2 percent more from the capital budget, that starts to add up when you're talking about a billion dollar capital budget. To say, oh, we're going to save it in the operating budget, that's just not going to mean much to those who set the capital budget. To really accelerate a shift toward green building, we need to change the system, change how budgets are allocated and how operating costs are tracked.

MM: I can appreciate the example of the executive order creating a mandate for the green building of state agencies, but how does it impact the rest of us citizens if these practices are limited to governmental agencies?

LH: It doesn't. That's the short answer. The governor can only issue an executive order that applies to his executive agencies. That's the scope of his authority in using that tool. Also, the executive order does not apply to higher ed because they are governed in a different way. It does not apply to the K-12 school system, and even doesn't technically apply to some agencies that are governed by boards and independently elected chiefs, like, for example, DNR. In some ways it has a limited scope, but it sets a model. For example, the Department of General Administration handles a lot of the building for a lot of agencies, even community colleges. So, when they start shifting over to the ethic that every building they build is going to be a green building, it's going to have ramifications for other clients that they have.

Part of what we had hoped to do with the executive orders was, broadly, to expand the market for environmentally preferable products and services. If, as a state, we commit to green building, we've all of a sudden created a better market for all these building professionals who provide that service. So, we're saying, hey, this is in your economic interest and the interest of the state to build buildings that are more energy efficient. We're creating a market for those services. Our new executive order says we should move toward paper that has more and more recycled content; so, we're signaling to the companies that producing this paper is going to be in their economic interest. That, I think, is part of what's behind sustainability. That's very different from traditional environmental management. You really want to harness the power of the market, and you want to work in tandem with that.

MM: In what ways is the work you do supported by other states? Do you have counterparts in these other states?

LH: Early on in my job, I had this dream of starting a national network of state sustainability people because I know there's someone in New Jersey doing this work; I know there are pieces of it happening in a lot of states—in Minnesota, Oregon, New York, California. That's part of the challenge of sustainability, it's so broad, but there is a great community developing around environmentally preferable purchasing, green building, and energy efficiency. And there are more associations developing around global warming. There are pieces of it, but we're not well connected, and that's just another challenge of being at the beginning of this.

MM: Prior to this interview I looked for a simple definition of sustainability, and I found different definitions in different places. How would you define the term sustainability?

I can never think of it on the fly, but, essentially, it's about meeting the needs of current generations without impairing the ability of future generations to meet their own needs.

LH: The definition that we officially adopted is the one from the Brundtland Report found in the '87 United Nations document called "Our Common Future." I can never think of it on the fly, but, essentially, it's about meeting the needs of current generations without impairing the ability of future generations to meet their own needs. If any, that's the one we've officially adopted. Part of that concept, or the principles behind it, is thinking about long-term health and well being. Once you get away from thinking on a two- to five-year, or even 10-year, timeframe, you start looking ahead to 50 years. You're also looking at the importance of biological integrity under-lying all economic prosperity. That high quality of life for all people is really your ultimate goal, and in order to provide that, you need to have these other pieces working really well.

MM: I get the feeling that, in the kind of work you do, you sometimes experience resistance. I think that resistance might exist within the culture. What are those forces that resist the ideas of sustainability, maybe not always in principle, but in action?

LH: As I alluded to earlier, I think our systems are set up to maintain status quo, and it's very hard to break that cycle. I think we have difficulty seeing the impacts of our actions across space and across time. A lot of the actions we take have unintended consequences. For example, now we're experiencing global warming, and it's very difficult to know exactly what we did to cause it. We could change much of what we do now, but we're still going to be seeing these delayed impacts 10 years down the road. I'll use the example of Alan Durning, head of Northwest Environment Watch, who has recently published a book where he looks at trends that are occurring around the Pacific Northwest. These are trends that typically don't get reported, because we tend to report crises. He calls these trends "slow news." Over time these trends look at the patterns of urbanization. He looks at the accumulation of toxins in our bodies and what we're doing with our natural resources base. When you look at these trends over time, they fundamentally define how we experience our life here in this place, but we tend to miss them, because they don't stand out, except for a story here or there. All the ecosystems in the world are in decline. It's very hard for us to

see that and internalize it, and it's hard to create a sense of urgency for action. Yet when you start looking at these trends, they do create their own sense of urgency. That's what we face with sustainability. We ask, what's the problem; what's the problem to which this is the answer.

MM: Where do you find support, and what form has that support taken?

LH: Once we started the Sustainability Team at Ecology in 1998, one of the projects that that team took on was, as I mentioned, trying to define what sustainability meant for the agency and how it might impact and inform the work that the agency did. There was a tremendous amount of support around that effort, and we came up with eight principles of sustainability, which are based on some of our best thinking at that time. These included many of the ideas we've already touched on: the interdependence between ecological health and economic vitality and community well being, that the concept of waste can and should be eliminated, that incentives must be created to promote sustainable outcomes, and that local decisions have global implications. These principles are now officially endorsed by the agency. We also officially incorporated the Sustainability Team, which I co-chaired, to look for how the agency could then use these principles.

MM: Are these principles and practices shared by other state agencies?

LH: Actually, our team realized that what Ecology could do was limited unless we had our sister agencies around the state also thinking along the same lines. We began to work with Department of Health, the Department of Community Development, and Trade and Economic Development. We started thinking collaboratively about what kind of statewide actions or events we could do. I began participating in some regional groups where I'd met some folks from Oregon who had just passed Oregon's executive order and were really making great strides, especially in getting the business community much more involved. The Natural Step was really taking off there in Oregon, and it felt like Washington was really ripe to do something like that. Outside the agencies, communities were starting to see the promise of different systems that had the potential to lead us out the environmental problems we were facing. We were able to get some EPA money and we organized what we called the Leadership Summit for a Sustainable Washington in 2001. I set up a steering committee representing different sectors, and that committee helped design that day's agenda, what it should accomplish. We had the governor send out an invitation letter to a hundred leaders around the state. We really worked hard on the invitation list to determine who it would be best to begin with. It wasn't a time to convince people, but to invite people who were already thinking progressively about some of these issues in order to really explore the question in an organized way.

MM: And what were the main issues you addressed that day and what was your ultimate goal?

LH: We asked, does it make sense for the state to adopt some kind of a framework like this? What benefits might such a framework have? How might things be different if we tried to look at what the state was facing through this lens? Governor Locke did the keynote and we had other noted leaders in the movement—maybe that's the wrong word here—but to lead off the day. The rest of the day was spent working in small groups and drilling down into the issues. If we really wanted to achieve a vision of sustainability, what would be different in the next five to 10 years? What might need to change in the state? We did some

really great work around that, and a group met to follow up and continue those discussions. We sent Governor Locke a letter that thanked him for bringing everybody together, for starting that conversation, and we recommended that he sign an executive order that commits the state to taking some first steps, and that he convene an advisory panel that would really look carefully at what an action plan for the state would be. Some months after that, he agreed publicly to do those two things, which is part of what put the first executive order in motion, and also convened his Sustainable Washington Advisory Panel, which, subsequently, did do an action plan. The early work that Ecology did really helped to push the state agenda.

MM: In terms of support outside of state government, have the environmental groups, citizens groups, worked with you on issues of sustainability?

LH: Not really, and I think one of the challenges of sustainability is that you're looking at different kinds of partnerships and alliances. The traditional environmental community has been suspicious about the sustainability piece. I mean, they're on the front lines, they're doing the battles, they're looking ahead two to five years, because that's what's on their plate. They're looking at issues such as DNR's adoption of new levels for harvest, and they're in there looking at regulating toxics. I think when we're talking about working in partnership with industry, it's dicey territory for the environmental groups. That's beginning to change, though. I know in this session, the leading environmental groups in Washington are going to be pushing green building legislation. So, they're going to be looking to take what we just passed in the executive order and even strengthen it and float a green building bill. They're looking at this as a way to meet their environmental goals as well as help promote economic development in the state.

MM: Why has the term "sustainability" entered our vocabulary now? Why now and not when the state was confronting the Midway Landfill crisis and other Superfund sites, or, even earlier when toxic discharges turned Commencement Bay brown? Why now?

LH: I think it's our learning process. I don't believe the Midway Landfill crisis led us to sustainability thinking because part of the whole waste garbage crisis of the mid-'80s pushed us toward recycling, which is not the answer. There's a book called *The Consumers Guide to Effective Environmental Choices*, from the Union of Concerned Scientist. The authors offer a very eloquent treatise on why the garbage crisis led us in the wrong direction. Again, it was just more end-of-pipe management. When the whole environmental regulation framework came into being, we realized we needed to control the emissions from smoke stacks. We put scrubbers on the smoke stacks; we put filters on the end of our waste pipes, etcetera. Then we started seeing that we needed to prevent contamination farther up the pipe, but we never really looked to the design process and why we are using these chemicals in the first place. There are no drivers to do that.

MM: OK, so I have this plastic juice bottle in my hand here, which I got out of the vending machine, and on the bottom it has a recyclable emblem. I can put it in my recycle bin. I'm doing a good thing. Why is that not a sustainable practice? What would be the sustainable practice and the sustainable approach?

LH: With plastics you waste a lot of energy in the recycling process, and you end up with a feedstock that's not an ideal feedstock for anything. So, you have these things like the park benches, that are made out of recyclable plastic, and a few niche market products, but for

the vast majority of recycled products, it's not energy efficient, it's not material efficient. This product you're holding, the little juice bottle, was made to hold juice. It wasn't made to be recycled into other feedstock. That's part of what Nike's trying to change by having designers design a shoe out of plastic and of rubber that truly is recyclable, or reusable, or doesn't have the material and energy loss when it's incorporated into a new product. People are trying to do that with carpet now, not just grind up the old carpet, but to truly be able to reuse parts of the product. You lose a tremendous amount of material integrity in the recycling process, and you end up with a lot of product that is very, very difficult to use. It's not clean; it's not pure. We think we're being good consumers by recycling our juice bottles, but where we choose to buy our food, whether we choose to eat meat that's been factory farmed or vegetables that are produced in a monoculture with heavy chemical use, or whether our food has traveled 3,000 miles—those choices makes a hugely different level of impact. Yet we're lead to believe that recycling is the answer instead of really thinking differently about every single thing that comes into our home. For example, right now there's a lot of concern about some of the toxics that have been used for years and years in furniture and upholstery fabric, which, over the years, decays. This stuff is not regulated. So, if you were, from the get-go, designing a product that did not have synthetic chemicals that build up in nature, then you're not going to have a downstream problem.

MM: Is it possible to live in an area where population growth continues to rise, such as Washington, and still work successfully toward sustainability?

LH: I think it's a huge quality of life issue that has been in the sustainability conversation. Obviously population can't grow indefinitely, but we can have a much greater impact on how that development happens than we've had up until this point. People think about quality of life issues; they think about how long their commute is. They think about what they see on their commute: the growth of the big-box stores, nonpedestrian-friendly developments. One of the things you look for in sustainability is how these issues are related, because it's fundamentally about looking at things as a system, rather than isolated issues of events. You've got these weird patterns of development that are very car centric. Then, separately, you have the study that says that the health of people in the suburbs is generally worse than those living in the city. The link being the fact that people in the suburbs aren't walking. In the suburbs, it's not pleasant to walk. You don't have a neighborhood grocery store to walk to, and there's really no public transit, people have cars. So, you start to see cross issues between sustainability and human health and a whole variety of things.

MM: We've discussed this some, but perhaps you could say a bit more. That is, what are the environmental, economic, and social issues that make achieving sustainability so difficult?

LH: I think it starts with that term, "achieving sustainability," because I don't really see us achieving sustainability. I always try to couch it in terms of moving toward sustainability because sustainability is really more like an ideal that we have to hold out there. The challenge is that it's been a very vague concept. But we try and remind people that's not a reason to not take it seriously. Even my mother still doesn't quite get what it is I do after all these years.

Alan Atkisson, a trainer and teacher, did a workshop I attended about sustainability. He compared it with trying to find a definition of democracy—that if you sit in a room with 13 people, and you ask each person in that room what their definition of democracy is, each would have a different definition, but still agree that it's an ideal worth pursuing. My experience is that when I ask around the room about sustainability, I find there are different ways of articulating the idea, but, an overwhelming degree of concurrence on the basic principles and clear agreement that it's an idea to strive for.

MM: Are there incentives, or even disincentives, in terms of striving for sustainability, working toward that goal?

LH: In regard to corporations and industry, we have a historical system of subsidies that send strange signals. For example, we tax productive work. We typically don't tax toxic outputs of waste. People have discussed our need to think differently about those signals, structuring our economic signals in such a way that we really encourage activities and products we want more of, and discourage those we want less of, instead of an archaic system that we've inherited—all of these strange tax subsidies. For example, there's still a sales tax exemption, from the '30s, on herbicides and pesticides in this state. I don't know all the details, but I believe that was a Depression era subsidy designed to aid the agricultural community. In some cases those chemicals are part of our farming structure and necessary, but we're sending a signal, an incentive in a way, to use more of these chemicals that seep into our groundwater and are persistent, rather than trying to subsidize alternative systems that may be able to produce the same quality of produce but without quite the environmental impacts. So I think the subsidy system, the whole tax structure, is a real challenge.

People have discussed our need to think differently about those signals, structuring our economic signals in such a way that we really encourage activities and products we want more of, and discourage those we want less of, instead of an archaic system that we've inherited—all of these strange tax subsidies.

MM: Is there a way, in what you do, that your office, or the Office of the Governor, can help establish incentives for people to use more environmentally friendly products?

LH: Yes, we do. In fact, I think this federal corporate tax bill that was signed a few weeks ago, creates a kind of exemption for bio-diesel. The state's committed to trying to use more bio-diesel, and my understanding is that it's been about 20 percent more expensive than regular diesel, but with this tax exemption it could bring it right in line with regular diesel, so that's great news. I think that the state Legislature passed a number of similar kinds of programs to facilitate the development of clean, renewable energy in bio fields in Washington state, so there's certainly things we can do within our power.

MM: That's part of the answer, probably, to my next question. What are the environmental, economic and social issues that make moving toward sustainability possible?

LH: What the advisory panel that I mentioned earlier tried to do is create a vision for where Washington could be and how Washington could benefit, and they really tried to make the case that we are well suited to undertake this, more than any other region in the country—that we have a history and a legacy of innovation, of development of new technologies, creative responses to problem solving, the biotech industry. We have a lot of things that work well in our region for making this kind of a transformation. One of the recommendations in their report was that we need to start thinking about what those economic opportunities are for our state. For example, there have been a hundred thousand new jobs in wind power development in Europe over the last 10 years. Nothing like that exists here, and if we're really going to be the leaders in some of these new technologies and services, we should really think about that sector.

MM: What are some of the common waste practices across medias, air, water, and land, that cannot be currently described as sustainable, yet they're considered compliant in regard to current environmental regulations?

LH: What comes to mind is the idea of toxics, because that's the world I came from, working in Hazardous Waste and Toxic Reductions. In doing research, I realized that the way we test, and this is more on the federal level, but the way we test and allow new toxics, new chemicals, to be used in products is terribly inadequate. So, you run into situations where you're getting chemicals out in the marketplace that haven't really been tested for low-level synergistic effects.

MM: What does low-level synergistic effect mean?

LH: Well, in testing requirements for new chemicals, they tend to want to test for acute toxicity—what level of a dose is someone going to have an acute reaction to and is going to cause them some health issues. But what we typically don't test is the very low levels of some of these materials and chemicals collecting in our bodies over time. What's the impact of those working together? Or maybe you have 15 related chemically, some related to materials in your body, at the same time. So, there's a great experiment going on in our bodies with toxics that's perfectly legal. In other cases you have materials or chemicals that are toxic enough so that in the production process, and this happens in the production of PVC, polyvinyl chloride, the waste from the production process has to be handled as hazardous waste, but when the material is incorporated in a product, it's legal, because it's considered inert.

MM: What steps is Ecology taking to promote the concept, and to incorporate its precepts into not only its own organizational life, but in the greater world, especially the near and distant future?

LH: Certainly the Beyond Waste project, where they've set a 30-year vision involving eliminating the concept of waste, is very consistent with sustainability and will lead to a different set of actions. You see, if your goal is to reduce waste by 20 percent in 50 years, you're going to take much smaller steps. So certainly Beyond Waste is incorporating the concept of sustainability. There's possibility within all of Ecology's programs. I recently got an e-mail from one of the people who works in the Non-Point Source Program. They deal with non-point sources of water pollution, and they're revising their plan and want to integrate sustainability into it. They're paying attention to sustainable community

development, and they want to be able to incorporate that. So, I know people are thinking about it.

MM: Do you see progress when you think about how we dealt with waste early on, even prior to recycling, compared to how we deal with waste now?

LH: I don't think we've made all that much progress. I really don't. I think it's been pretty incremental. We're not educated or conditioned to understand the real impacts of our actions. We don't comprehend the impact of our transportation choices, our food choices, the size of our houses, choices that are huge compared to whether we recycle or not. Though recycling isn't a bad thing, you know, it's a good thing. It builds this ethic that our waste practices should be closed-looped in terms of our materials management. Still, the problem is, you can put your little plastic juice bottle in your recycling bin, and then you'll spray your yard with tons of pesticides or fertilizers that run off your lawn in the next rain storm, down into the creek. Progress, or our lack of it, is about making those kinds of choices.

MM: After all is said and done, after you're retired, how do you hope that the work you're doing now will be looked upon, or built upon, by those who will follow?

LH: I believe utterly in the vision and the goals of sustainability and that they are where we need to head. When you work in this area for several years and you start to see the forces that are pushing back and how dug in they are, it's really easy to lose hope. But I look at an issue like climate change and global warming and see how that's really beginning to take hold. People are starting to understand the potential devastation that it could cause. With an issue like that, there's the economic development opportunity for alternative fuels and cleaner cars and cleaner energy sources. You can see how they might be able to progress hand in hand, so that gives me hope that people will look at some of the work that we tried to do in these early years as paving—paving not being the best word to use in this sustainability interview—but paving some roads that people can travel on later by our having built receptivity. So when the time is right, we've created a more receptive audience. But it's hard when you work in a politically charged environment because things can shift so much, depending on the next gubernatorial administration, depending on the kind of federal leadership we get. I hope someday in the future people are saying things like, "Can you remember when we used to just throw stuff away, like computers? My God, all that stuff is so valuable." I hope people will look at this window of time and think, "Thank God those guys started doing this work then."

Chapter Seven - Saving the Shorelines

Once known as one of the most significant herring spawning areas in existence, Cherry Point, an eight-mile stretch of Puget Sound shoreline 10 miles south of the Canadian border, remains one of the most productive and sensitive marine environments in Washington state. It also is an area uniquely suited to deep-water mooring and seafaring commerce, having been a site of industrial development since 1954 when Mobil Oil built the first pier there. In 1977, just five years after Washington state's Shoreline Management Act (SMA) became law, Chicago Bridge and Iron, an international company specializing in large-scale industrial development, proposed to build offshore drilling rigs at Cherry Point. The project, which did not meet the state's guidelines under the newly implemented shorelines legislation, would have involved significant dredging and filling of the nearshore/tideflats, displacing 22 acres of water and replacing it with 1 million cubic yards of rock and dirt, ultimately depleting the area of vital marine habitat. Interviewees for this chapter reveal both the behind-the-scenes and in-the-open political test of wills, which came into play when changes to the SMA, exempting Cherry Point, were proposed, pitting the protection of the environment against the development of economic opportunities.

Chapter Advisor: Darrel Anderson, Unit Supervisor, Environmental Assessment Program, Washington State Department of Ecology

Interviewer: Maria McLeod

The Plan to Protect the Coastlines

An interview with Rodney Mack
February 2, 2005


Mack

Position held at time of interview:

Retired, formerly Program Manager for the Shorelands and Environmental Assistance Program, Washington State Department of Ecology, 1983-1994

Education:

- Graduate Program in Environmental Policy and Management, Harvard University, 1980
- Master of Urban and Regional Planning, University of Washington, 1969
- Bachelor of Arts in Geography, University of Washington, 1964

[Note: The following transcript is based, in part, on an earlier interview with Mr. Mack conducted by John Erickson of Ecology's Office of Financial Services.]

Maria McLeod: Rod, thanks for agreeing to talk with me about the history of the shoreline development at Cherry Point, north of Bellingham in Whatcom County. I'd like to

start by asking you about your first job with Ecology, working on the Shoreline Management Act in 1971. What did that job entail?

Rod Mack: My charge, when I joined Ecology in 1971, was developing the regulations related to the permit system of the Shoreline Management Act (SMA) as well as the guidelines. Those guidelines were basically instructions for local governments' preparation of their Master Programs as well as standards or criteria for evaluating developments that took place on the shorelines, again, by local government.

MM: What specifically did those guidelines entail?

RM: The guidelines were procedures for preparing Master Programs, directing local government to think in terms of policies for protecting certain areas of their shorelines and to consider policies for what kind of development they would want to see within their county along rivers, lakes and marine waters throughout the state. For example, if residential development is being evaluated or looked at for approval or non-approval by local government, criteria may include what kind of setback from the water should be considered based on what kind of shoreline it is and what kind of density was appropriate and how many houses per break or hill. There were then criteria for industrial development, for agricultural uses, timber harvesting, for all the kinds of activities that can happen on shorelines.

MM: Would you say that local government had quite a bit of authority in developing their own Master Program at that time, or was the state able to dictate certain components of the Master Program criteria?

RM: The SMA talked about a partnership between the state and local government, and we worked hard in the early days to make sure that it worked that way. Ecology had the lead, and again, we created the guidelines, but in doing so, we had meeting after meeting with local government, especially with the planning departments. One of the components required by the guidelines was the creation of citizen advisory committees to work with the local government, specifically for developing the Master Program. We met over and over with these citizen committees to give them advice and guidance, but primarily the burden was on local government to create their Master Program. It was quite unique in that virtually every city and county in the state had a relatively short period of time to develop these programs, and everybody was learning as they went. Then, from about 1972 to 1975, I had the lead responsibility for approving or not approving those Master Programs as they were submitted to Ecology.

MM: Are there 39 Washington state counties with shorelines? That number has stuck in my head.

RM: Initially, we had a staff of about four or five; so we were running around an awful lot. We spent some time in the office, but I think we were probably averaging three or four night meetings around the state in a week. Also, we were responding to questions that nobody, nationwide, had experienced.

MM: What kind of questions?

RM: Mostly questions on standards. For example, what should we be talking about in terms of the impact that timber harvesting has on shorelines? Should we be prohibiting

clear-cutting or just doing selective thinning? What, if anything, can be allowed in wetland areas versus other areas? What kind of steep slope shorelines can be developed or should be developed? So, we were responding to technical questions as well as procedural kinds of questions.

MM: As part of the process to develop guidelines for the Shoreline Management Act, did you have to work with the Department of Natural Resources?

RM: Oh, yeah. DNR was absolutely involved. In fact, they developed a comparable sort of program for the shorelines—not identical to and not necessarily following local government—which they were responsible for. They spent a lot of time evaluating their shorelines similar to the way local governments were doing at the time. A lot of the issues we were working on affected other state agencies. So, we had a lot of dealings with those agencies, such as DNR and the Department of Highways, to make sure their interests weren't overwhelmed in the process.

MM: Were agencies, such as the Department of Highways, which we now know as the Department of Transportation, doing construction that affected shorelines?

RM: Absolutely. The Department of Highways had to consider all their bridge crossings and the abutments supporting bridges, as to whether they could or should be in the water, or set back as far as possible from a river's edge. Many of our highways cross extensive wetland areas, which affects water circulation through the wetland. That still goes on today, but in 1971 we didn't have as much environmental information as we do now on the value of wetlands. I'm sure a lot of the scientific community were comfortable in their knowledge about wetlands, but there wasn't significant public knowledge or strong concern.

Many of our highways cross extensive wetland areas, which affects water circulation through the wetland. That still goes on today, but in 1971 we didn't have as much environmental information as we do now on the value of wetlands.

MM: Did you feel that there was a kind of disconnect between the work you were doing, and the people you were sometimes talking to, in terms of your sense of the value of the wetlands versus theirs? And, if so, how did that play out?

RM: Well, that varied by locality. In some areas, there was reluctance to listen to the state. There's always a little bit of distance between local government and the state—understandably so. Local government wants to do their thing, and they may resent having the state involved especially in something like land use, which is historically a local prerogative. Historically, the state has turned over that authority to the local government, but the SMA did a bit of a reversal to that by reclaiming some land-use authority from local government.

MM: In looking at the early legislation that formed the Department of Ecology, I noticed that there were six separate pieces of legislation that then-Governor Dan Evans was trying to pass at that time, one of which was a form that became the Shoreline Management Act, which didn't pass at that time, in 1970, but passed in 1971. I'm wondering if the resistance

to the shorelines legislation had to do with the state taking control of the shorelines out of the hands of local government. Was that your sense of things?

RM: My understanding was that the legislation was developed in part by a group of environmentalists, primarily the Washington Environmental Council, who met with the Governor Evans. I imagine they developed the proposal for shoreline legislation without a whole lot of involvement of other groups, which I think the governor took to the Legislature, but it didn't pass. Perhaps one of the reasons is that the development of the proposed legislation didn't appear to include the involvement of other affected parties, such as local government, real estate interests, or others who would have obviously have been affected. So, it didn't make it in the Legislature. But you have to remember, this was just before Earth Day, and just before the big environmental wave that contributed to getting things moving in the direction of shorelines protection specifically, and environmental protection, generally.

MM: How would you describe, prior to 1970, what was happening in Washington state in terms of shoreline development and use—or I guess you could say "abuse"—of the shorelines? How would you describe these issues within that pre-environmental movement?

RM: Well, there were a number of individual proposals that got people both excited and alarmed. There was a fairly large proposal for a resort on Hood Canal that upset some of the local people there. There was discussion about industrial development, port development, at the Nisqually Delta, between Pierce and Thurston counties. That, again, made people very upset and nervous. There seemed to be a developing interest in recreational activities about that time. We saw that folks wanted to recreate in shoreline areas, but we were seeing fewer and fewer opportunities to do that, not just because of major developments, but more because of an incremental nibbling away without any apparent rationale or plan or idea to protect and preserve as well as develop. Then there was the 1969 Chelan decision by the state Supreme Court called *Wilbur v. Gallagher*, which was a very significant decision by the Washington Supreme Court dealing with a landfill in Lake Chelan. The intent was to develop housing on the landfill in the Lake, which was challenged by a neighboring property owner. The challenge was strongly supported locally, and went, ultimately, to the Washington state Supreme Court. The Supreme Court said that fills reduce or eliminate the public use of public water, and, from that point forth, would be seriously questioned and maybe not get legal approval until some overall planning had been done, proving that it's appropriate in some areas and not appropriate in others. That decision froze development involving any kind of filling, which was, at that time, pretty significant.

MM: I wonder if you could tell me a bit more about the history of the shoreline legislation, and the fact that there was an initiative, supported by the environmentalists, and then there was the Shoreline Management Act created by Legislature, which eventually passed, as we've discussed. Can you tell me what was at stake for the supporters of these two versions of the legislation?

RM: Sure. Of the two versions of the shorelines legislation, the environmentalist version talked about a jurisdictional area. In other words, what areas, what pieces of geography, the act applied to. The environmentalists proposed the state's jurisdiction would include 500

feet back from the water's edge, providing for a strip of land, 500 feet wide, that would be the jurisdiction of their bill. They also placed primary, almost exclusive, planning and regulatory authority with the Department of Ecology, instead of local government, resulting in a very strong role by the state and a much lesser role by local government. That initiative got enough signatures to go on to the ballot at the next general election. Seeing that, the Legislature then decided, as is allowed and provided for under the state's constitution, to enact their version to put on the ballot, which was the Shoreline Management Act, which ultimately passed. The basic difference between the initiative and the act was that the act named a strip 200 feet from the water's edge as the area of jurisdiction, and then set up the joint state/local approach. The Shoreline Management Act also attached an emergency provision to the legislative bill, making it effective immediately, which was June of '71. So, the Shoreline Management Act became law. The state constitution says that when there are two versions, they both go to the voters at the next general election, and the voters have the opportunity to first say whether they want any form of shoreline management. If the answer is yes, then the next question is, which one of the two? So in '72, the voters then said, yeah, we want some kind of management of the shorelines, and we prefer the Shoreline Management Act. But prior to that election, we worked for a year enacting the SMA without really knowing for sure that it was even going to be approved by the voters. So, not only were we developing all of the requirements of the SMA, we spent a lot of time going out and explaining what the act was about. And we spent a lot of time meeting jointly with the environmental community who were talking about their version and hoping to get it enacted.

MM: So in 1971, before this Shoreline Management Act was actually passed, you were going out and working with people to adopt an act that you knew was going to pass, is that right?

RM: Well, we hoped it would. It had been enacted, but its continuation was subject to the vote.

MM: And the version the environmentalists proposed, the initiative that did not pass, what number was that?

RM: Initiative 43 and 43B were the designations.

MM: And when you say the environmentalists, was there a specific group of environmentalists, do you remember?

RM: At that time the Washington Environmental Council was the most active, but there was the Audubon Society and several smaller groups. But if there was a single voice, it was the Environmental Council.

MM: When you were developing guidelines for the Shoreline Management Act, were you also working on the regulations for the permitting system that was part of that?

RM: Yeah. Another requirement of the Shoreline Act was a permit system that was developed by local government, but subject to the guidelines of Ecology. There was also a minimum dollar threshold, which meant that a proposed project whose fair-market value was below the threshold did not need a permit. There were a fair number of exemptions from the system, but essentially, to do something on the shoreline required a permit from

local government called the Substantial Development Permit. It was a brand new kind of permit. Once local government approved that permit, it had to be submitted to Ecology, and nothing could happen for a certain period of time until Ecology had a chance to review it. If we at Ecology disagreed with the action of local government, we could appeal it to a Shoreline Hearings Board. The regulations that we developed for that system had to be adopted as state regulation. We worked closely with the Attorney General's Office, especially with an individual who was absolutely key at that time, Bob Jensen, an assistant attorney general working in the Ecology Division of the AG's Office. He worked on the legal development of all these guidelines and regulations. After being with Ecology, he was elected locally in Lacey, and he stayed with the AG's Office, he also worked with the Shoreline Hearings Board for a number of years.

MM: Getting back to the permitting system, how did the application of those permits work?

RM: The legislation included maybe a paragraph that described the procedure, which basically left a lot of questions. Ecology was required to flesh out the regulations and develop the procedures, making it more clear what exactly required a permit, and what didn't. Once the timing and the specific procedures were enacted, local government could set up the system locally so that when an applicant came into the county, they had a form to fill out.

If a stretch of shoreline was listed as a Conservancy Designation within the Master Program, that meant that only very limited kinds of uses could be made, such as a swimming dock, but certainly not industrial development—no landfill, nothing like that.

In other words, Ecology created the guidelines, and then local government implemented them. Our two-pronged approach included the Master Program and the Permit System. The Master Program is, in essence, similar to zoning in some respects by a different name, but significantly a little more environmentally oriented than normal zoning. Then there is the permit system. The permit has to fit the Master Program or it can't be approved. If a stretch of shoreline was listed as a Conservancy Designation within the Master Program, that meant that only very limited kinds of uses could be made, such as a swimming dock, but certainly not industrial development—no landfill, nothing like that. If, hypothetically, somebody came in for a permit on that particular shoreline and wanted to do some dredging, or to extend a bulkhead out 50 feet and fill behind it so that they would have more land, that clearly would be inconsistent with the Master Program permit and should not have been approved locally. In a few exceptional cases, when it might have been approved locally, it would come to Ecology. In that case, we would have looked at the same thing local government had, and said, wait a minute, you shouldn't have done that. Then we'd take it to the Shorelines Hearings Board, which is an impartial body. They would look at what we were saying and what local government was saying and would make a decision.

MM: It sounds as if Chicago Bridge and Iron, and their proposed shoreline development north of Bellingham, Washington, at Cherry Point, served as the kind of application that

you're talking about. As a way of heading into that, can you tell me what Chicago Bridge and Iron was, and what that name stands for?

RM: Chicago Bridge and Iron is an international corporation that deals in heavy industrial development. It's headquartered in the Netherlands, but it has offices throughout the world. They do big-scale energy and related types of development. In 1981, when Cherry Point development became an issue, Ecology did not deal with the company, per se. What triggered the issue for Ecology was that Whatcom County, within whose jurisdiction Cherry Point lies, had developed a Master Program, and that Master Program had been approved by Ecology, which is part of the process. That program had very restrictive language in the Cherry Point area, at least for the tideland area—that's the water area and the immediate tidelands. That particular Master Program included a Conservancy Designation to protect those tidelands. Then Chicago Bridge and Iron approached Whatcom County, expressing an interest in developing a site where they could construct offshore drilling platforms. At that time, there was interest in doing exploratory drilling in Alaska and, at some point, oil and gas production. Cherry Point is an area that is geographically close enough to that area of Alaska where there was interest in drilling. So, Chicago Bridge and Iron thought of it as a potential place where platforms could be fabricated and barged to Alaska. There's very deep water not very far off shore, which is essential for big scale projects like this one, proposed for Cherry Point. From Chicago Bridge and Iron's standpoint, this was a very desirable location. So, they went to the county to seek a shoreline permit, and the county said, we've got some problems here with the permit not meeting the requirements of the Master Program. The county was interested, obviously, in pursuing this particular development, and for reasons that probably any county would be interested—for the tax base, employment opportunities and all the things that go along with such proposals. The county said that the only way to make the proposal even remotely feasible was to change the ground rules in the Master Program, and so they did that. But part of the process was that those changes had to come to Ecology for approval. I don't remember the exact numbers, but there were close to 15 proposed changes. Some of those changes dealt with policy, generally, and some were very specific regulations affecting that stretch of shoreline. We looked at it and said, you know, we agreed with your Master Program in the first place, but we don't agree with what you're doing now. We're concerned about the tidelands. We're concerned about herring spawning areas and all of those kinds of things. For those reasons, we cannot approve the program changes that you're proposing, and we denied it. So, we weren't dealing with Chicago Bridge and Iron. In fact, I don't think I ever met anybody from the company. We did, however, deal with a whole raft of attorneys from Bellingham who were representing them.

MM: Is Cherry Point in Bellingham proper?

RM: Actually, it's in northern Whatcom County, in an area of unincorporated land, less than 10 miles south of the Canadian border. Bellingham is nearby and is the seat of Whatcom County. The significance of Cherry Point, from the industry's standpoint is its access to deep water, minimizing the need for an ultra-long dock, upland industrial zoning and support facilities, and, especially, direct access to open ocean shipping lanes, eliminating the need to move through Puget Sound with the massive platforms.

MM: In terms of dealing with the attorneys, what issues and arguments did they put forth?

RM: The county wanted the change because of the industrial base expansion, the employment opportunities, and an increase in the tax base. The upland in that particular area had been zoned for industry. They argued that the proposed development is a logical extension of that upland use. On the other side, there were the citizens' groups, some of whose members had helped to put the Master Program together, and they objected to the changes that were being proposed. Also, the environmental community opposed it. Fisheries opposed it. DNR opposed it. A number of commercial fishermen actually opposed it because of the impact on herring and the long-term potential impact on the fishery industry.

MM: What was the purpose of the proposed offshore platforms?

RM: For offshore drilling in Alaska specifically, but I assume they could be taken any place. My understanding is that they would be constructed on that site and then floated or barged and taken to wherever in the world that they would be used.

MM: Was there also a pier to be built off the shore?

RM: Yes. I don't recall the specific length, but the plan was for a very long pier, as well as the associated upland tank farm, to reach deep water. The basic intent was to offload crude oil from Alaska. As for the rest, my recollection is that they needed to develop a graving dock, which is essentially a dredge and fill operation that results in an excavation, which would lower the water level in the intertidal area. That water would then be pumped out so that the area becomes essentially dry and somewhat below sea level. In that area they were to develop these massive platforms—I mean, they're big—to do much of the fabrication. Once that was to be completed, they would have flooded the area and floated them out, tying them onto the pier in deeper water, and then they were to do whatever finishing work they needed before taking them wherever they were going.

Map of Cherry Point, an eight-mile stretch of shoreline in Whatcom County.

MM: And what happens to the eelgrass, the marine life, and the herring that spawn in that area of Cherry Point if such development were to take place?

RM: Oh, clearly gone. Absolutely gone. There were some discussions about mitigation and whether a comparable area could be established someplace else, but I think most scientists who looked at it were pretty skeptical that could happen. If those eelgrass beds could be constructed in some new area, why hadn't they developed there naturally? There was strong skepticism that those beds could ever be replaced or duplicated. Eelgrass was, at that time, recognized by scientist and environmentalists as a key herring spawning area, which obviously supported the salmon fishery in that area. There was even interest in the herring spawn itself as being an exportable product. I think it was also recognized that the black brant geese population depend on a healthy eelgrass habitat and had harbored at that area during certain times of the year.

MM: What was the public response to Whatcom County's proposal?

Aerial photo of Cherry Point shoreline where Chicago Bridge & Iron's proposed project would have been located.

RM: There were mixed feelings in the local area. Obviously, there was strong interest in, as well as need for, economic development in the area. The area—at least the upland in that general area—was devoted to industry. The proposal wasn't, from that standpoint, inconsistent with the upland land use. But at the same time, the Bellingham area has a large population of commercial fishermen who recognized the potential negative impact that this might have on their interests. There are also crab fishermen. Again, the eelgrass was an important part of the Dungeness crab life cycle. In the larval stage, or at least in early life, they need that particular kind of habitat. So, reaction was mixed at the local level, but the elected officials opted to proceed with the change of plan. Ecology reviewed the proposed change of their plan, as is required by the SMA, and objected to it.

MM: What can you tell me about when the Washington State Ecological Commission held its hearings in regard to Cherry Point? I understand that about 500 people attended. That seems to me like quite a large group of people to gather at a hearing. What were the people saying, and why did so many people show up?

RM: The hearing was held at an auditorium in Bellingham—I don't remember where the building was—but it was full. I eyeballed about 500 people. The Ecological Commission, made up of representatives from various sectors outside of the government, had been created at the same time as Ecology and had been charged with giving advice and guidance to the director of Ecology. Because this issue at Cherry Point was affecting regulations and because the commission had to give their recommendation on regulations, it was determined that they were the most appropriate group to conduct the hearings.

MM: Were most of the 500 or so people in attendance there to support Ecology?

RM: Well, it was kind of hard to tell. The bulk of the testimony was not supporting Ecology. That's due, in part, because opposition to environmental positions often is better organized than the environmental position. Often times, that's their job, and they're paid for that kind of position, whereas, too often, the environmental interests have to depend on volunteer citizens spending their time. So, I think we got used to being in hearings where you'd hear more from one side than the other. But it's not a vote that we were searching for; it was more the information that we get from both sides to help us make a better decision. Anyhow, the testimony was definitely mixed. The commercial fishermen were somewhat organized and opposed, and that was a little unique in that situation.

MM: What is the saying, politics make strange bedfellows, because people sometimes switch sides depending on what is going to work in their favor, right?

RM: That's exactly right.

MM: Were there any heated testimonies, or any moments where you felt you needed to defend your point? Or was it just another hearing?

RM: No, I don't think it was typical. I think we appreciated, before we went into the hearing, that the issue of Cherry Point development really split the community. It was an issue that virtually everybody had an opinion on, and the hearings reflected that.

MM: I know that the Legislature enacted legislation that would have overturned Ecology's position in regard to the proposal to amend the Master Program for Cherry Point, allowing for Chicago Bridge and Iron's development. However, Governor Spellman vetoed the legislation based, in part, on Ecology's recommendations. Can you tell me the story behind that?

RM: The legislation would have overridden Ecology's objection in this one particular case, and would have provided that Whatcom County's changes be approved.

MM: What influenced that legislation that would have overturned Ecology's position?

RM: I can only speculate, but I'm sure certain local legislators had elected officials who agreed with the elected officials from the county. I'm sure that the company pleaded with the elected officials to support their position. I don't really know the specifics, however.

MM: And do you remember what kind of reaction there was to the Governor Spellman's decision to veto?

RM: As I recall, there was a specific timeframe within which Governor Spellman had to make a decision to veto, otherwise the legislation was approved. Obviously, we were very interested in the position he was going to take. His office was deluged with calls from both sides seeking his support, so it wasn't an easy decision by any means. The final decision to veto was very courageous environmentally, and, I'm sure, a difficult decision for the governor.

MM: What kind of direction did you receive from Ecology's director at the time, Don Moos?

RM: Don was very involved in the political aspect of it, as a director should be. I think he had confidence in the staff that the work and the justification for Ecology's position was there, but he also recognized that it was very controversial and very difficult and probably would go to the governor ultimately. I think he saw that coming, and that his job was to try to not have the governor have to face those issues. Ultimately, the issue rose to that level, but Don Moos stuck with it and certainly Don supported the staff. I think he did well.

MM: Did you ever have to testify in front of the Legislature on this issue?

RM: Not on this one. As I recall, there was an emergency session that was called specifically for the issue. The Legislature met in a one-night hearing without taking testimony, and it was passed. It went quickly.

MM: Was that process typical of the way the Legislature operated in those days?

RM: Not really. I guess the legislation that seemed to move most quickly were those issues that the Legislature saw as purely local, and, because of that, they deferred to the legislator from that area if the issue didn't appear to affect other areas of the state too much.

MM: In terms of local governments' decision-making process on the issue of development or non-development of the shorelines, of what significance were the environmental factors?

RM: From an environmental standpoint, given that the environmental perspective is one of many perspectives, my observation is that in areas where economics is a prime consideration—in the smaller, less affluent communities—there is a higher priority for jobs and tax base than there is priority for environmental concerns. I believe that's a result, in part, of a lack of technical expertise. In the King counties, the Snohomish counties, they have people available on staff who are knowledgeable about fish and wildlife, endangered species, wetlands, and related issues. So, when a local decision is being made, those issues get melded into the decision. You don't have that in some of the smaller communities, understandably. That's an expense that just isn't warranted in those areas, so it doesn't get built into the local decision, and when we're talking land-use issues in smaller communities, typically those economic interests that deal in land use are there. They're on planning commissions. They're elected to political offices, and to the extent that it is appropriate, they represent their interests and their perspective on things. In some local decisions, the environmental concerns can get shortchanged. That isn't unique to the state of Washington. During the winter months, I live in Desert Hot Springs, California. A few miles from where I live, they were fighting about protecting mountain sheep habitat versus developing a golf course. That's a major land-use controversy there right now. We've got the environmentalists on one side and the golf course developers on the other side. That happens everyplace you go.

From an environmental standpoint, given that the environmental perspective is one of many perspectives, my observation is that in areas where economics is a prime consideration—in the smaller, less affluent communities—there is a higher priority for jobs and tax base than there is priority for environmental concerns.

MM: In preparing for this interview, I learned that the Federal Coastal Zone Management Act was passed in 1972, which led me to wonder, is there a relationship between the state and federal acts, and, if so, what is it?

RM: There's a definite tie. The Federal Coastal Zone Management Act came about in '72 at virtually the same time our Shoreline Management Act was finally approved. We were watching it very closely, because the federal law provides substantial funding to states that develop management programs. Here, we had the Shoreline Management Act. Oregon had a new Coastal Protection law. California had their Coastal Commission Act at about the same time, and I think Massachusetts was moving along pretty well on managing their shorelines. Other than that, there was little comparable management of shorelines—virtually nothing going on in the country in '71. So, we saw a real opportunity. Our Shoreline Management Act was probably, with maybe the exception of California, the

strongest law of its kind in the country at the time. This was right at the beginning of the environmental movement, and what we were doing was groundbreaking. It wasn't a case where we could pick up the phone and call some other state and say, hey, what did you guys do in dealing with this? Other states were calling us. When the Federal Coastal Zone Management Act came along, it said, if a state wants to do a program, here's some money to do it; then, once it's done, here's some more money to manage it. Then, when the feds were developing their own regulations to go along with these federal laws, they came to us for guidance. That was a real different situation. Typically, when the feds do something, they then pass it on to the state. In this circumstance, we were able to influence the federal guidelines, just because we had a year or two under our belts before the feds did. In '76, that ultimately led to our state becoming the first in the nation to have an approved coastal shoreline management program. The feds were careful that the first approved program was a good one because it would set the example for all the rest of the coastal shoreline management programs they had to deal with. So they wanted the best, strongest program they could squeeze out of us. But we, in fact, had it pretty much from the beginning. I should mention that Senator Magnusson, who was from Washington, was a prime sponsor of the Coastal Zone Management Act. He attended the ceremony the feds held in Seattle in '76, which Ecology had set up to acknowledge the approval of our state's Shoreline Management Act.

MM: If Washington state's Shoreline Management Act was passed in '72, then why was it another four years before the feds approved it?

RM: The Federal Coastal Zone Management Act was an unprecedented kind of federal law, which was handed over to National Oceanic Atmospheric Administration, NOAA. They had absolutely no experience whatsoever with such a law, so they had to put staff on to deal with it. Then there was a fair amount of start-up time involved before they could get to the approval stage.

MM: Is the relationship between the Shoreline Management Act and the Coastal Zone Management Act similar to the Federal Clean Air Act and Washington state's versions of the Clean Air Act, where the state must adhere to the federal guidelines fairly strictly, but is then allowed to build upon those guidelines?

RM: The Federal Coastal Zone Act isn't as directive as a lot of legislation you might be familiar with. It doesn't say, your program has to do this, this and this. It's a little softer than that and leaves a fair amount of latitude, because, frankly, the difference between the state of Washington and the state of Mississippi, when it comes to managing shorelines, is vast.

MM: If Washington state was the leader, or at least one of the leaders along with California on developing their shoreline program, how did you go about writing the regulations when you didn't have other states to look to as models?

RM: To a great extent, the SMA is a land-use law. It deals with wetland, but it also deals with at least 200 feet upland of dry land as well. There's a history of land-use laws and language. My background is in land-use planning, and the people we dealt with primarily in local government are land-use oriented. They're the ones who were administering the law locally. So, it's not like everything was brand new. Some of the issues had been around for a while, but what was new from the environmental aspect was the understanding of the

environmental value of the shorelines. That was a big part of it, but we've come a long way since then. Back in '71, part of the concern from the public was more about losing their views of the water because of all the development going on along the shoreline. We'd hear people say, I can't even see the water anymore with all the development. That water out there, Puget Sound, is a public body of water, and I can't get to it. Those were major issues. With the landfill in Lake Chelan, the public lost another section of the water surface. Those are issues that have been dealt with in normal land-use debates and decisions—for example, whether or not you can see Mt. Rainier because of a certain development. So, from that aspect, we weren't treading a lot of new territory. But, from a protection standpoint, that's where we had difficulty getting adequate information.

MM: After Whatcom County's amendment to their Master Program, which would have allowed Chicago Bridge and Iron's proposed development, was vetoed in 1982, what did you and others do, if anything, to meet the economic needs of Whatcom County, yet still keep environmental protections in place?

RM: Well, the effort was continuing when I retired in 1994. But prior to that, we worked with the county a lot after the veto, looking at what might happen at Cherry Point, since their long-range comprehensive plan showed that area as having development potential. We worked with them, trying to find some way to allow that potential industrial upland area to have some sort of access to the water because we all felt the potential of that deep-water site was fairly rare, and that there should be some way of being able to take advantage of that without the serious disruption that the Chicago Bridge and Iron was proposing. We did move in that direction, not sacrificing anything environmentally, looking at how they could take advantage of what the county had been looking at for years and years as an industrial site.

The Wheat Farmer Who Stepped Up for Shorelines

An interview with Don Moos
February 23, 2005


Moos

Position held at time of interview:

Hearings Examiner for Douglas County and the cities of Cashmere, Entiat, Rock Island and Waterville, since 1994

(Director of the Washington State Department of Ecology, 1981-1985)

Education:

- Bachelor of Science in Animal Science, Washington State University, 1947

Maria McLeod: Prior to serving as director of the Department of Ecology from 1981 to 1985—during which time you became involved in the Cherry Point development issue among other things—what had been your professional background and training?

Don Moos: I was one of the founders of the Washington Association of Wheat Growers, and I became fairly well known through Eastern Washington. Then, I had the opportunity to run for the Legislature because of a vacancy. I won by 17 votes, and I served in the Legislature with Dan Evans. He was a sophomore when I was a freshman. I was the seatmate of Slade Gorton, who was another freshman and who later on became the state attorney general and also served as a United States senator. Joel Pritchard was another newcomer. He became a U.S. congressman and then the lieutenant governor of Washington state. So, I had an opportunity to serve with many key figures who went on to became state leaders.

During my last term, which was the 1964 election, '65 session, Governor Evans asked if I would be his director of Agriculture, which was an obvious area where I could serve. So I gave up my 1,100-acre wheat ranch I leased over at Edwall, and my family and I moved to Olympia. I was Agriculture director up until Governor Evans ran for his third term, in 1972. Then I had the opportunity to become the deputy administrator of the new Environmental Protection Agency, Region 10, out of Seattle. I was not as comfortable as I had been in state government because it was more difficult for me to make something happen with the federal agency. So Governor Evans asked if I would come back to the state during the time he was reorganizing his Governor's Office into five sections. One of those sections was Natural Resources, of which Ecology was a part, another would be Human Resources, and so on. I headed up Natural Resources for about a year, '73 to '75. During that year, the Boldt Decision, issued by Federal Senior Court Judge George Boldt, came down, I think, on Lincoln's Birthday in February, and quite a bit of turmoil started to erupt. That decision gave Indians 50 percent of the reservation catch, plus a subsistence and a ceremonial fishery. When the reduction of the commercial fisheries was impacted, the response was, as you can imagine, reasonably traumatic.

MM: Were you director of Fisheries at this time, or did that come later?

DM: I was appointed director of Fisheries on March 1, 1975, by Governor Evans upon the resignation of the prior director. When the administration changed in '77 with Governor Evans leaving office and Governor Dixie Lee Ray coming in, I was out of the Fisheries position. And, as campaigns go, I had been pointed out as a person who wouldn't be a political asset in that position. However, it turned out that after she let me go, I had to return for several months because that job carried an appointment with the federal government as a commissioner with the United States / Canada Fishery Commission, which was an appointment that I couldn't readily vacate. In January of '78, I went to Wenatchee to become the fishery coordinator for the Public Utility Districts of Chelan, Douglas and Grant counties.

MM: And what were the circumstances when you became director of the Department of Ecology?

DM: After I came over to Wenatchee, I was working closely with the Bonneville Power Administration on the development of the Northwest Power Act. I went to Portland many times, and on one occasion the motel had a phone message for me to call Governor Spellman. This was in 1981. So I called him from a pay phone booth and reached him at his home in Seattle. He said, Don, I'm going to be sworn in tomorrow, and I would like to be able to announce that you're my new director of Ecology. This took me completely by

surprise. I didn't even know I was under consideration. I had made no application. I said to John Spellman, "Well, I think on this one I should call my wife." He said, Well, I've already talked to Parmalee, and she says if it's all right with you, it's all right with her. So that's how that started.

I might point out that I did not move to Olympia on that particular job. I would drive over early on Monday and return to Wenatchee on Friday evening, and that was my pattern, because on appointments like that, you might be director one day and out the next.

MM: You would drive over on Monday, and then you would return home at the end of the week?

DM: Yes. I'd return home on Friday in time to have dinner with Parmalee.

MM: So, you would spend the week in Olympia, and the weekends in Wenatchee. Tell me, what it was like to live in Wenatchee and have your job in Olympia, making that drive, and having so many issues going on at that time? Was that a disadvantage, or how did you experience that situation?

DM: It was an advantage, and that was because the Western part of the state and the Eastern part are completely different as far as the environmental issues and concerns. It's about 3 1/2 hours of driving one way each trip, about 7 hours total, which is a whole day of work, really. That would give me enough time to be able to think through what was going on in the agency and the issues in front of me. There was no cell phone in my car; it was before any of those things. I was able to think about the shorelines issues and all the different environmental situations that were in front of us. So, I found that drive an unusually good situation, because when you're in the office, there are no breaks in the directorship. The schedule is pretty tight with meetings and phone calls coming in—different staff people and the press are always interested in talking. The director's schedule is crowded far, far beyond the 8 to 5 situation, so I found the opportunity to drive back and forth was good.

MM: Did your early work on issues of fishing rights and agriculture relate to the shoreline issues you faced while working with Ecology?

DM: Well, it certainly did. Actually, my background continues to serve me as the hearings examiner for Judicial Land Management in Douglas County and along the Columbia River. Also, historically, many of the orchards in Eastern Washington—particularly in the Wenatchee, Okanogan area, Omak, on through all the way up to the Yakima area—were planted right up to the river. In many cases, that was a lot better situation than having houses or roads or other things right next to the river because the orchards were, in a way, a buffer protection. That's the way it was, but it started to change as society went along and people found out that developing houses along the rivers was, in many ways, more profitable than raising apples. So, people wanted the opportunity to be able to sell the waterfront land. When that took place, they ran right square into the Shoreline Management Act, which set forth the 200-foot buffer.

MM: What were your early reactions and thoughts about the Shoreline Management Act? Did you see it as protective law that you could point to and say, you can't do this because ...?

DM: Well, I was in the Governor's Office working on the Natural Resource Agencies, having come back from the EPA, and the act was fairly new. I was fairly close to it, but never in my life did I ever realize how I would, at some time, be right in the midst of some of the controversies that were looming out there. It was very complicated to take a legislative law like that and to build the blocks of making it effective through rules and regulations. Many people think that a law passes and immediately it goes on the books and is enforced; however, there are many details that have to be built into the legislation in order to make it practical, and to be able to apply it before it becomes part of the RCW (Revised Code of Washington).

MM: And that's the work of Ecology, to take the legislation and have their rule writers work between whatever factions to ensure that, when they're done, that they can apply that law, right?

DM: Yes, quite a bit of that happened on my watch at Ecology.

MM: So, in regard to the Shoreline Management Act, and the various ways it was put to the test, at what point did you learn about Chicago Bridge and Iron and their plans to develop Cherry Point?

DM: As I remember the calendar, the legislative calendar, it was 1983, Chicago Bridge and Iron had a bill introduced in the state Legislature exempting their property at Cherry Point. I had been in the post of director for about a year, and the legislative session was going on. I was at home over the weekend, and the phone rang on Saturday. It was Joe Williams of the Department of Ecology, who at that time worked in Shorelines on this particular issue. He indicated that Governor Spellman had vetoed the legislation that would have set aside the Cherry Point area from the Shoreline Management Act. He was very joyous, and I thought, "Well, that's interesting information," because I also knew, having been a legislator, that at some point they would have an override vote.

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The next week, I called my wife, Parmalee, and I said, I won't be home on Friday and that I thought I'd better stay in Olympia, because the Legislature would have the override vote at the very end of the session, which was going to be Sunday. I had a little apartment in Olympia, and I remember very well putting on a pair of cowboy boots for some reason. I still shake my head thinking about it. I don't remember if I went as far as blue jeans and a jumper, or a hat. I don't know, but for some reason, I did that. I put on my boots. I went over on Sunday morning, parked the car in front of the Capitol, went up the steps into the Governor's Office, and it was bare. There was hardly anybody around at all. So, I picked up one of the Sunday papers in the waiting room and began reading. People started straggling in at about, oh, 9 o'clock, and as they did, some of them would look over at me. They were going into

the office right next to the governor. The governor wasn't there, but they were there because they were going to have a conference on the budget. I was watching, and after a half hour I thought, "Well, nothing much happening here." But before I left, I thought I should at least walk in and say hello to those people. I did, and I noticed a well-known person, Charles Hodde, who was at the time an advisor to the administration and the Legislature. He had been a legislator from up in Stevens County, and he had been speaker of the House of Representatives, and then he became the director of Revenue, amongst all other things. He had an unusually good career. He looked up from what he was reading, along with these other men, and he said, what's a wheat farmer from Edwall doing here in Olympia on Sunday morning? Well, I looked over and I said, "About the same thing that a potato farmer from Stevens County is doing over here." He had raised potatoes in Colville, and we chuckled over that. I said, "I'm really here because of the issue on Chicago Bridge and Iron," at which time the acting director of Revenue looks up at me and says, Chicago Bridge and Iron? I said, "yes." He said, we got pleadings on a suit. They started the suit last week. I asked, "What's the issue?" And he said, well, the issue is they claim that because they are an out-of-state entity, they are not subject to certain state taxes, et cetera. My heart kind of stopped, and I think my heart looked up at me and said, now what are you going to do? I asked him, "Do you have those pleadings?" Well, he said, our office is down there in the General Administration building. I'll call down there, and have someone meet you at the door and give them to you. At which time, I walked down there. Quite a few things were going through my mind. It's kind of downhill from the Capitol to the GA building, and in cowboy boots that was a blessing. I went to the door, and he handed me the pleadings. I turned around, and I headed up the sidewalk to the Capitol and then up the Capitol steps. My heart was pounding. I thought, "Of all the things I've done in my life, this would be a terrible time to have a heart attack. This is so crucial." I went up and read the pleadings. Then I got hold of the press person for the Governor's Office. He had come in about that time, and I said, I want you to get hold of United Press International, UPI, Gordie Schultz, and tell him that you have this bit of news. I needed to get that news on the radio as soon as possible. I had to get it on immediately. It was right around 10 o'clock, and the Seattle legislators and the Tacoma legislators, and probably some legislators up further north would be heading to Olympia because the gavel would drop at noon. I, having been a legislator, knew that they don't miss the news. They'd have their radios on, and if I could get this bit of news on there, it would be pretty good.

MM: What would that news mean to them?

DM: Well, they'd want to know that Chicago Bridge and Iron—the bill that they had passed and that the governor had vetoed, and which they now they were going to have to override—was before them and that this company had showed up, saying they didn't want to pay state taxes. One of the big arguments, I would suspect, for setting aside Cherry Point from the Shoreline Management Act, was the dire financial situation of our economy in the state of Washington at that particular time. So, I imagine this was the excuse to vote for setting aside a certain hunk of land at Cherry Point for development. One of the things about legislators is that they like an excuse to do something they're not, in normal situations, apt to do, if I'm explaining that right. That is, in this situation, they had the excuse of the economy. But, anyway, the next thing I did was to get a copy of the press release UPI put out. I made 100 copies or so. Then, I got a hold of the pages up in the Senate floor and the House floor, and we put that press release on each desk. When the

legislators came back after listening to the radio and reading that press release, they didn't even take the override up. They never even voted on it. And the people representing that company, they left, and it was all done.

MM: How did you know they were going to wait until the end of a session to do an override vote? How did you know it would have taken place that last Sunday?

DM: With something like that, they will hold off until the last possible moment, so then no initial counter punch can be administered.

MM: I don't understand why—if Chicago Bridge and Iron was struggling to develop Cherry Point—why didn't they understand that their contribution to the tax base had to be one of the big draws for the legislators wanting to override the governor's veto? Why in the world would they try to sue the state and say, we're tax exempt in certain areas because we're an out-of-state entity? What was the motivation?

DM: Well, I don't think that the company came in and said we want to be an addition to the tax base. I think the legislators were saying, we want to add it to the tax base. Chicago Bridge and Iron had hired very sophisticated people to represent them to the Legislature. I'd suspect those people had no idea about that court case. None whatsoever. If they had any idea that that court case was being filed across the street from the Capitol at the same time that they were trying to drum up the votes they needed to override a veto, they would not have rested very well. I think the lawyers back in Chicago who were working on the other part of this had no idea under the sun what was happening under the dome of that Capitol.

MM: In terms of Chicago Bridge and Iron, it sounds as if the left hand didn't know what the right hand was doing.

DM: Yes. Now, there's a lot of supposition, but I've been wearing those shoes over there in the Legislature, and I would suspect it became disconnected.

MM: You said that UPI sent out the press release. Did that become a news article?

DM: At some point, I ran across an article, but it wasn't in detail like you and I are talking about. It may have come out at the end of the session, and some scribe in the *PI* (*Seattle Post Intelligencer*) or *Times* (*Seattle Times*), or maybe even the *Spokesman-Review*, was doing a review of the session, and this story was just a paragraph. It didn't go into any detail on the tax situation or override of the veto.

MM: Did anyone, any of the legislators, ever talk to you about that press release being on their desks?

DM: No, and I never talked about it. When I went back to the department the next day, there was no conversation about it. I never remember any conversation with Rod Mack or Joe Williams—the cowboy boots, the Stevens County potato farmer. It's a story that's never been told.

MM: You mentioned that the economy wasn't very good at that time, in the early '80s. Can you give an example of what the nation, the state in particular, was facing? Were we in a recession?

DM: Yes. I remember the interest rates, at that time, when I was buying my house in Wenatchee. In 1979, the interest rates had peaked up there at around 17 and 18 percent. There were a lot of people out of work, and people being out of work was an extra burden. The environmental acts, such as the Shoreline Management Act, were fairly new adventures in the environmental legislation, and they were still controversial. We're now talking about this almost 30 years later, and times have changed, but during that period of time there was a considerable amount of doubt whether such laws were worth even the paper they were written on. Now, people expect this type of protection for the environment. That doesn't mean that there no longer is a concern. Certainly, there's a lot of concern especially for people over in the Central and Eastern part of the state who are having a difficult time meeting their payroll, or paying their taxes on orchard land, which is view property on the Columbia River that they would like to be able to develop. It's easy to make great pronouncements, but once you sit with bank loans and the interest, owning property you can't do anything with, you learn the other side. I've been very fortunate in being able to recognize both sides.

MM: It sounds like having been a legislator and knowing the process really helped and informed what you were going to do that day, that Sunday at the Capitol in your cowboy boots. I wonder, in what other ways did your past experiences help or hinder your work on this issue and others?

DM: Being a former legislator helped me through some of the departments. It was also informative to work in the Governor's Office and watch how theories, legislation and concepts were being formulated the early days of the environmental movement. Then, I moved directly into the hotbed of controversial daily TV excerpts. I could almost bet that on three days a week, I'd be on three of the channels. If I served well as an Ecology director, those were all the types of experiences that I had. Chicago Bridge and Iron was important, and we did the best we could in such circumstances. I don't get too involved in things that I can't do something about. There are so many things out there that are facing you, you could use up all your time fretting, but I try to reserve my involvement for those issues I can do something about, and it seems to work out all right.

MM: You seemed to know you could do something about Chicago Bridge and Iron at that moment, and you did.

DM: It was a lot of luck. There's a lot of luck in how the world turns. Having been up there, having seen Charlie Hodde and the revenue man, having the Chicago lawyers deciding it was time to sue the state of Washington. Those weren't great deep thoughts that I had. I was able to use a lot of bad judgment on the part of other people.

MM: What do you think was at stake politically, economically and environmentally, with this Cherry Point issue?

DM: Well, I think the credibility of the Shoreline Management Act was at stake. Economically, you had the fisheries element and eelgrass. The Bellingham area is a significant fishing area, an area that is very conscious of the habitat, such as eelgrass, for salmon and other fishes. The Fisheries Department grabbed hold of that immediately, and they supported the fact that they did not want any development that would destroy eelgrass.

MM: And you must have known pretty quickly, as former director of Fisheries, what the loss of eelgrass would have equaled, because I'm sure you had watched dwindling species of salmon. Is that something that went through your mind?

DM: Well, it went through my mind, but there was another fishery that was tremendous up in that area, and that was the fishery for herring. The herring were shipped to Japan, and it was an extremely lucrative fishery for those who participated in it. However, it was running a little counterclockwise, taking all those herring and shipping them to Japan versus developing the herring and having them become a part of the food chain for the salmon and the steelhead up there. So, there were a lot of divisions of opinions.

MM: Was Governor Spellman's veto strictly based on the law, or was it based on the issues at Cherry Point? Do you remember his decision to veto, or do you recall any conversations you had with him?

It wouldn't have taken much deliberation to know that you're not going to have the Legislature move in and cut a hunk of area out of the Shoreline Management Act, and out of an area so significant to the necessity of environmental preservation. I think his decision to veto was more of a natural response. I'm sure it came naturally to him.

DM: No. Like I may have said earlier, I didn't have any conversations with him. It wouldn't have taken much deliberation to know that you're not going to have the Legislature move in and cut a hunk of area out of the Shoreline Management Act, and out of an area so significant to the necessity of environmental preservation. I think his decision to veto was more of a natural response. I'm sure it came naturally to him.

MM: So after the veto happened, were there wounds that needed to be healed between the Department of Ecology and the proponents of the amendment, and what did Ecology have to do in the subsequent months after the governor's veto?

DM: Well, I think if there were any wounds, they were down in the Capitol Building. It didn't reach out to where I was, and I wasn't really aware of it. One of the situations is that the Governor's Office and the Legislature are not always on same terms on each bill, as you might suspect. There's a degree of tension, between the legislative sessions, regardless of what the topic is. I think the majority of the Legislature at that time was Republican, as was John Spellman, so they were probably not akin to such legislation and restrictions as the Shoreline Management Act set forth. The approval of that act had an unusual impact on the entire state of Washington. Take a look at Puget Sound. There are hundreds of miles of inlets that travel all the way out to the ocean and back around down through Hood Canal and all through there. Then you come east, over the mountains, and you get into the Columbia River and the Yakima River, the Methow, and all the streams over there. The Shoreline Management Act has a great impact there, too. I would suspect that, in the early stages of the Shoreline Management Act, the general public did not see the far-reaching impact.

MM: So, when you think of all the various challenges, or the challenges that you know of, in regard to the Shoreline Management Act, how significant on that spectrum was the Cherry Point, Chicago Bridge and Iron issue?

DM: Well, I think the significant part is that for the Legislature to do spot zoning, pulling particular areas out and away from what the general public and the state had put in there by legislative action, is not acceptable.

MM: Are shoreline issues still a topic for you, now that you are serving as Hearings Examiner for Douglas County?

DM: Yes. I had a hearing yesterday afternoon and I had one earlier in the week, both dealing with the shoreline, with variances. It deals with developments. I hear those, examine the statute, and make a ruling of whether they can do it or not. You need to know what the law is, because if you go on appeal, that's what the judge is going to look at—the law and whether you had the authority to do what you're proposing. So, I look very carefully, as I've learned over the years. In the case of Chicago Bridge and Iron, you look at the law. The law said they couldn't do it, and then the Legislature says, well, we'll carve a hunk out of it, and then they can do their development. The governor said, that's your idea. My idea is that you can't do it.

MM: What lasting impact did your role as director of Ecology and that of Governor Spellman have upon the Shoreline Management Act and its subsequent implementation in the state, after Cherry Point, Chicago Bridge and Iron?

DM: In my case, I was in the Governor's Office at the time of the formulation of these laws and had watched these laws come into being. I was, in many cases, in the vicinity and in the atmosphere of laws that had an impact, and will continue to have an impact on generations yet unborn. Part of my role was in the development of regulations and examining what would be the impact of particular proposed legislation on those generations that are still unborn in this state. Our legislation in issues such as shorelines, pollution, dangerous waste and others, not only has an impact on those of us living now and our kids who are living now, it goes on much further than that. I am unusually proud to have lived at a time to see this transition.

A Prime Location: Deep-water Docking vs. Herring Habitat

An interview with Barry Wenger
February 18, 2005


Wenger

Position held at time of interview:

Environmental Planner, representing the Shorelands and Environmental Assistance Program, Bellingham Field Office, Washington State Department of Ecology, since 1994

(Employed by Ecology since 1986)

Education:

- Bachelor Science in Environmental Planning, Western Washington University, 1974

Maria McLeod: Barry, we're here to talk about an issue you've been dealing with for some time, Cherry Point, an eight-mile stretch of shoreline along Puget Sound, north of Bellingham in Whatcom County. I'm interested in the shorelines work you are doing through Ecology's Bellingham Field Office, particularly with Cherry Point. What can you tell me about your background, and your work with shorelines issues?

Barry Wenger: Well, I've been with the Department of Ecology a little over 19 years, working on shoreline issues from the beginning, 1986. Actually, in 1976, Whatcom County passed their first Shoreline Management Program, what we refer to as a Master Program. So, they had taken on shoreline management about ten years before I joined the agency. At that time, I was actually working for San Juan County as a shoreline planner, which was when San Juan County completed their first shoreline Master Program. Ecology was our contact. I was the local person talking with Ecology staff in a role similar to the one I have now. At that time, we were talking with Rod Mack, who was with the Shorelands Program at Ecology headquarters. At that time, we were holding regular meetings with all the planners where we tried to figure out what shoreline management is and how do we do it, because at that time it was all brand new. Ecology was great. They really helped us get started. It was tough because it was the first time San Juan County ever had a Planning Department. It was a time of weekly diatribes from the local paper, saying, the Communists are trying to take away your private property rights. That would be in big, bold letters.

MM: I'm imagining that local government had enjoyed a good deal of control over their shorelines. Then the Shoreline Management Act passes in '72, Ecology comes in and fleshes out those regulations, and develops the guidelines for the Master Programs and permitting, which local government experiences as restrictive and out of their control. Is that how it worked?

BW: The way it really worked was, in 1946 or so, the state passed a Planning Enabling Act; however, all that did was to set forth the structure for planning, setting up planning commissions. Normally you have comprehensive plans, establishing what areas you want as commercial, or residential, or what have you. Then, the county would implement zoning,

putting in restrictions to actually make that effective. What used to happen is that the plans would get so far out of date, they wouldn't even follow them. They weren't required to follow them, and the zoning didn't even match. You'd have zoning going into an agricultural area that was industrial. It just didn't work, and there were no controls against urban sprawl. That's what growth management brought 10 or so years ago. Before that, in 1971, Shoreline Management was an initiative by the people; then the legislative version was passed in 1972. It's a real interesting law because it's both a land-use law and an environmental-protection law. The other element that makes it unique is that it's not only a plan for protection and planning development, but it also has regulations and implementation built right into it. So, unlike the disconnection between the group doing planning and the one doing zoning, the SMA was a unified way of addressing and protecting what was considered the first critical areas in the state: the major salmon streams, marine waters and the big lakes. It was very effective. When the Legislature passed the SMA, they said, OK, Ecology, you're in charge of setting up the process, the rules. Rod Mack, as a matter of fact, was one of the prime authors of the Shoreline Master Program guidelines that were set forth, establishing how things were reviewed as far as natural systems: dunes, bays, spits, estuarine areas and wetlands. There were considerations for marine environments, urban bays, rural areas, conservancy or natural areas that need more protection. It was quite an amazing amount of work, especially for back then.

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In 2003, December, the new Shoreline Master Program guidelines were put in place. That's the first time in essentially 30 years or more that they were updated. And in 30 years we've learned so much from science. Back then, I can remember being involved in writing the first real local article on eelgrass. This is about 1977-'78, back when people had no idea, from a marine perspective, what eelgrass does as far as providing a nursery and forage area and everything else. It was an article I helped my ex-wife, Nancy Wenger-DeVaux, write. She ended up getting a prize for writing one of the best articles of the year. It was an article in two parts, and was published in the *Island Record* or the *Friday Harbor Journal*, and then re-published in one of the Seattle papers. In 30 years, the science of all these things—wetlands, eelgrass, forage fish—has progressed. Now, we are so protective. We have really good regulations in place. Back then, we didn't even know where forage fish spawned. We didn't have a clue.

MM: I know that eelgrass is especially important at Cherry Point, which we'll be discussing. Can you describe the significance of eelgrass, which, as you said, we didn't know about 30 years ago?

BW: Eelgrass is the rain forest of our Northern marine waters. It is so productive. It's a vascular plant with a root system. Most of the time, it spreads by sending out a kind of shoot, and another plant pops up off of it. I'm sure you've seen it—a long, thin, flexible

blade—growing in the subtidal area. You'll see it lying flat on the tideflats at low tide. There are two kinds: one's the Japanese form, which is shorter, and the other is the native form, which can get 16-18 inches in length. It grows in the phototrophic area between about minus five down to maybe minus 20 at an extreme, if you have really clear water. A lot of times it grows at minus 12 or so. So, it's in an area that's extremely biologically productive. There are so many different animals in the marine system that depend on it. Like I said, it looks like blades of grass, but very big blades of grass, which provide a massive amount of surface for all the little tiny algae-like plants to grow on. That becomes a grazing surface for all types of shrimp and anthropods and crustaceans. So, you tend to find lots of food there because it's photosynthesizing, growing and shedding off some of the old cells. Those old cells are used for food for the detritus feeders. You'll find juvenile salmonids there. Black Brandt Geese depend on eelgrass when they're migrating through on the Pacific flyway on their way south. Then there are all the crabs, the shrimp, everything else. It's such a productive plant community for our Northwest ecosystem.

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MM: Also, eelgrass relates to the importance of herring, does it not, especially at Cherry Point, which is one of the central issues in terms of development of the shoreline in that area, correct?

BW: Absolutely. It's hard to talk about Cherry Point without talking about herring. But, related to that, I'd like to talk about Whatcom County and the development of the Master Program. The interesting issue was that, before the Shoreline Management Act went into affect in 1972, three major piers were built along Cherry Point. Arco, which was put in 1971, is to the north. It's now owned by British Petroleum, BP. Then there was Intalco, which was constructed in 1967, in the middle, which is an international aluminum company, a smelter in this case, now owned by Alcoa. The third pier, the first one located there in 1954 and at the southern end, was a Mobil Oil Pier. Now it is owned by ConocoPhillips, which is also called the Ferndale Refinery. So, those three big piers were put out there, extending from about 1,500 feet to approximately 2,300 feet offshore. Then there were parts of that shoreline that were being eyed for development by companies like Chicago Bridge and Iron.

Then the Shoreline Master Program for Whatcom County went into effect in '76. That really slowed things down as far as more development. In about 1975, the Cherry Point herring stock was the biggest stock in the entire state. More than half of the whole biomass of herring in the state came from this one stock. Actually, it's a unique stock in a couple different ways. One is that, unlike a lot of the stocks in lower Puget Sound, this stock, when they get to about 2 years in age, migrate off the outer coast of Vancouver Island, feeding on really rich ocean-upwelling nutrients, basically phytoplankton and zooplankton, growing to very big strong fish, occasionally reaching 10-12 inches. They come back and spawn in a year, and can continue to spawn until they're about 9 or 10 years old, which is good, because bigger herring will produce a lot more viable eggs than the small ones. So the fish would come in and spawn, depositing their sticky eggs onto eelgrass as well as some other types of

macro algae similar to eelgrass. The Cherry Point reach is in the cultural and accustomed fishing ground area for the Lummi Nation. What tribal people did as a business from about the early '70s to the '80s was scrape the eggs off, package them, and send them to Japan for sushi. Those little eggs, when you get sushi, those are herring eggs.

MM: The little orange ones?

Pacific Herring (Clupea pallas)

BW: Yeah. They're highly nutritional eggs. Unfortunately, what happened starting about 1975, is that the stock started shrinking. Less and less herring were coming back. Now it's down to about one-twentieth of what it was, or about 5 percent. It's below what the scientists have considered to be a minimum threshold for sustainability—about 1,300 tons, down from the 16,000 tons. It needs to be somewhere around 3,500 tons of spawning fish to be a sustainable population over the long haul. Herring tend to be a fairly variable population anyway. So, if they're on a low swing year, and it's after a bad oil spill or something, it could really knock them down, maybe permanently.

MM: And that's a potential because there are oil tankers moving back and forth to Cherry Point, right?

BW: Yeah. But even just a couple of ships crashing together, or barges, would create a spill that would affect them.

MM: You mentioned that part of this area is the traditional fishing area for the Lummi Indians. What is their relationship to Cherry Point?

BW: The tribes have resource-oriented economies and heritages that they really want to hold onto along with their cultural heritage. There are artifact sites right on the beach, what are called middens, areas where the Indians have had potlatches, summer camps, for thousands of years. Over those thousands of years, they've developed these areas they call shell middens, where they've thrown their shells and other things, broken pottery, in one spot, which became, over time, a huge mound. A lot of them are 600 feet long, 20 feet across and 10 feet deep. So there's a whole heritage there. On Cherry Point, there's a real interesting old rock wall built into the water, and fish ponds where the tribes would catch fish. Actually they'd open them up and then let the fish in and then close them back up. So they bring a land-use perspective. They're really at the forefront of all that, and rightfully so.

MM: Regarding the spawning herring, I wonder, too, if salmon are feeding on Cherry Point herring?

BW: Absolutely. Two-thirds of a Chinook's diet is herring, traditionally.

MM: What else will feed on herring? Seals?

BW: Seals, most every kind of bird you can imagine. The herring used to be very, very productive. The water would turn white when they spawned out there—16,000 tons spawning.

MM: Have you seen that?

BW: I haven't seen that. I've seen film and photos from the old days. I haven't actually seen spawning herring up close. It doesn't turn the water white like it used to, back in the day when you could walk across the backs of the salmon they were so dense. That was really true then, and this is the same kind of thing; it was amazing. So, back when these big industries jumped in here, the law changed, and all of a sudden we were taking a closer look, but we still didn't know a lot about herring. We were just beginning to learn about eelgrass, and we were really in our infancy of trying to understand some of the relationships and what the impact was.

MM: So the Shoreline Management Act was enacted in 1971 through a citizens' initiative, and then you said your ex-wife, Nancy, had written one of the first articles on the significance of eelgrass in 1977? So, when the legislative version of the act passed in 1972 and rules and guidelines were set up, the knowledge of the very things that needed protection didn't exist, correct?

BW: In large part, that's true. Our knowledge was so primitive back then. People didn't have a clue about the different kinds of wetlands and how long it took to make an inch of bog. It takes like 40 years to make an inch of bog. So, if you're looking at 10 inches, that's a 400-year-old deposit of peat bog. That's not even a foot.

MM: Yeah, and without that knowledge, someone might look at a bog and see it as a potential area to dig up and develop. Right?

BW: They may make a pond out of it. Ponds are a dime a dozen, but the kind of plants that grow in a bog are extremely unique plants. You just can't create that kind of environment in less than a thousand years. So there we were at Cherry Point, an amazing area from a biological standpoint, because it has a huge diversity of species, like herons and eagles and peregrine falcons and all the marine animals and plants. The list goes on and on. But also, what's unique about it, from a development standpoint, is that it's a deep-water access point. Without having to dredge or fill, you can put in a dock that gets out to a world-class depth for tankers. You can get in what's called a cape-sized vessel. What attracts them is that they can get to 80 feet of depth below a zero tide level, which will give them enough depth in draft to bring in the largest ships made in the world. They're so big they can't go through the Panama Canal. They have to go around the Panama Canal and around the Cape. These are the ships that export massive quantities, going from the interior part of Canada to Russia or the Far East. They also bring in coal or large quantities of many different types of products, which is what all these big companies want to do now. The Army Corps of Engineers did an alternative analysis, trying to find if there was any other place that could provide this kind of facility, and literally, there isn't another location like it on the West Coast of the continent. They looked all over California, looked at Canada. This is the best location.

Also, from an industrial perspective, you have 10 square miles of essentially flat land up above the bluff—amazingly great land, especially for industrial facilities that need 40 to 100 acres. It's got excellent rail access, both to Canada and to the United States, and it's right next to I-5. Then, Bellingham has an international airport with foreign trade zone status. For people importing and exporting, it's got everything you could possibly want from an industrialist's perspective. So, there's a classic conflict: deep water for water-dependent

industrial uses, but also a sensitive biological area. So how do you balance both of those out? That's been the running battle for 30 years on the shoreline. That's why these piers got in, because there was really no way to say no to them back then. When the Shoreline Management Act and the Master Program went into effect, this was originally a conservancy-designated shoreline, which is very protective of the environment, but the uplands back from the bluff were determined to be industrial in the county's comprehensive plan and zoning. So, in this conflict of plans, the county would approve the permits inconsistent with what the shoreline conservancy policies were.

MM: And how did they get away with doing that?

BW: Well, they didn't. That's what became the shoreline permit appeals, like the one filed for Chicago Bridge and Iron. So, those appeals are essentially what ended up before the Governor's Office. On Chicago Bridge and Iron, Governor Spellman agreed with Ecology's position, but in doing so, said this area is obviously a really important site to the industrialists. It's a water-dependent use, which is something we're trying to encourage: shipping, navigation and commerce, good jobs, that sort of thing. But there's a conflict with its biological character. So, Ecology, can you go back and figure out how to balance those issues? That's when I was hired at Ecology in '86. When I arrived at the door, they were all working on this full-time, trying to figure out how to come up with a compromise and a solution with Whatcom County—they being Rod Mack, the program manager; Joe Williams, who was the management section supervisor back then, and Randy Davis, the staff planner. They came up with a scheme called the Cherry Point Management Unit, the CPMU, which spells out the benefit of the deep-water, water-dependent use—keeping everything else back from the waterfront as far as possible and trying to balance that need with the environmental concerns. So, there are things that can be put in within the shoreline area, but they're really pretty limited, and they really left it to water-dependent uses. The highly productive nearshore and bluff areas were to be rigorously protected from landfills, dredging and nonwater-dependent uses, but access by piers across them to the deep-water offshore mooring could be allowed for truly water-dependent uses. The environmental groups thought the CPMU was a complete sellout by Ecology, saying, we're going to give up on this wonderful environment up in Whatcom County. I think Whatcom County was happy because at least they were getting something out of it, saying, we could develop something out at Cherry Point. You could certainly appreciate their perspective, up in a rural area of the county, looking to Cherry Point as a huge economic engine for the whole county. Anyway, back then, when Ecology took a Master Program from a county or city and the document had been through its local approval, then we had to approve it to put it in place, taking it through a WAC rulemaking, the Washington Administrative Code. Also, because we were changing our WAC, it had to be reviewed and approved by the state Ecological Commission. That commission no longer exists, but at the time, they were appointed by the Governor's Office as an impartial body to oversee the rule-making actions of Ecology. Those individuals represented a broad range of interests: the building industries and the agricultural groups and environmental groups.

So, when I joined Ecology, Rod Mack and Joe Williams and Randy Davis had flown all over the entire state, visiting the homes of the individuals on the Ecological Commission to explain that the Cherry Point Management Unit was the best balance they could come up with. At the time, the proposed amendment to change the status of the conservancy designation to the CPMU created a lot of controversy. The Ecological Commission got calls

from everyone under the sun. But Ecology finally got the votes they needed out of the Ecological Commission. After they signed off on the amendment, we approved it. Then the environmental groups went to Washington, D.C., to our parent agency on Coastal Zone Management, which is the National Oceanic and Atmospheric Administration (NOAA), and said don't approve this. As it turned out, they didn't approve it. It's never been accepted. Cherry Point Management Unit has never been accepted into our Federal Coastal Zone Management Program, even though the state has approved it, and Whatcom County approved it. So, that complicates some things when you're looking at federal permits or projects involving federal monies that are being submitted to be approved and need to be found consistent with both our state and federal Coastal Zone Management Programs.

MM: Why didn't the National Oceanic and Atmospheric Administration approve the Cherry Point Management Unit?

BW: As I understand it, the reason NOAA didn't approve the CPMU was that they perceived it to be much less protective of the natural environment. Whatcom County and Ecology's proposal for the CPMU was worked out between 1984 and '87. Ironically, the basis for the environmental groups opposition to changing the shoreline designation to the CPMU was primarily anecdotal. It was a widespread and common belief among environmental activists that the Cherry Point reach was somehow unique. At the exact same time, the Cherry Point herring stock hit an all-time low population—about one-fifth of their historic run. No one was aware of this dire situation other than a handful of state fisheries biologists. It wasn't until 10 years later, in the mid-'90s, when two marine cargo terminal proposals were being reviewed by Ecology, that this situation saw the light of day.

MM: What kind of development proposals have come forward in more recent years?

BW: There are two that I worked on. One, in 1992, was the Cherry Point Industrial Park, which included a pier. That one was proposed by Joseph Scheckter, a Canadian developer. The other was a cargo terminal and pier was proposed to Whatcom County in 1994 by Pacific International Terminal, which actually received authorization to build in 1999 as a result of a settlement of a shoreline permit appeal. Cherry Point Industrial Park has gone by the wayside since then, but we spent three years in negotiations with Mr. Scheckter's team of attorneys. The county approved his permit for a marine cargo facility, including about 325 acres of upland related to the pier development. We appealed it to the state Shoreline Hearings Board, along with Washington state Fish and Wildlife, for a number of reasons. Mostly, we felt that the county had not addressed a lot of the issues, such as ballast water and invasive species.

MM: What is ballast water?

BW: Say a ship is coming into Cherry Point to pick up a huge amount of wheat transported by rail from the interior of Canada. In order to stabilize the incoming ship, they will need to spill seawater from a series of ballast tanks located around the inside of the hull. When they get here, they start pumping out the water and filling the hold up with wheat so it keeps their hull even in the water the way it's supposed to be.

MM: Is that because they're taking wheat on and need to eliminate the same weight to keep the ship at the correct level in the water?

BW: Yeah. So, the problem is it that brings in millions and millions of gallons of seawater containing all kinds of organisms from places that have major diseases and problems. The European green crab, for example, is one that has decimated shellfish industries on the East Coast. That's the last thing we want to have happen here. If that happened here, you could basically kiss the oyster and clam industry goodbye.

MM: As you've mentioned, these are international ships. How do you keep them from bringing the diseases or these other foreign species in? How do you stop that?

BW: Very carefully. I'm joking. But, to explain that, the Scheckter Group is an example. We negotiated for three years with them and came to a settlement. In that settlement there were about 20-some pages—essentially their shoreline permit if they met all those conditions. So, they had to do navigation studies, collision-avoidance studies, ballast water—a huge long list of things that they had to do. If we found, during the analysis of those studies, that there was going to be unavoidable, unacceptable impacts, then they weren't going to go anywhere. In the end, they really didn't have their expertise on board, and I think they finally gave up. I don't know for sure, but a lot of the developers will get the permit speculatively and then sell the permit to someone else instead of doing the development themselves. That was the impression I was getting from that group because they really didn't have the scientists. They didn't have people with shipping terminal knowledge on board, and they hadn't worked with the tribes.

MM: And the other group you mentioned, Pacific International Terminal, what was their proposal?

BW: Pacific International Terminal is funded by Chevron Oil, the Stevedoring Services of America, SSA, one of the biggest shipping companies in the world. The developer was a guy named Pettibone. That group actually had some good staff, and they really did their homework. They worked with the Lummi Nation. They worked with us a lot, and they worked with the county a lot. Unfortunately, we felt that their proposal didn't meet the standard either, so we appealed that county shoreline permit. We spent another three years negotiating with those folks, but we came up with a really good agreement with them, having worked through many issues. There was also strong involvement on the part of the Department of Fish and Wildlife and five environmental groups.

It was through the process of those two appeals that I looked more closely at the natural resources at Cherry Point. That's where I stumbled across the Cherry Point herring, which were not, at that time, being talked about anywhere, even in the prominent scientific studies or circles. I started asking these herring guys, "Hey, what's going on with this, people?" Their response was, we don't know what's going on. So I asked, "Well, is it really true they dropped this much in their production?" And they said, yeah, it's really severe.

MM: Were those the people at Department of Fish and Wildlife you were talking with?

BW: Yeah. They're the experts on herring. They'd been doing the studies for years, but the word wasn't getting out of their offices. It wasn't even getting around their own agency. Meanwhile, I'm thinking, wow, this is really significant. Half the herring in the state used to come from the Cherry Point area, and they barely come from there anymore. And now we're going to be allowing some huge cargo facilities that could come in and could bring in all these diseases? I thought, this is a big deal; we need to really think here. Everyone

better put their thinking caps on to study this because we don't want to screw this one up, especially when you figure our salmon are going on the federal Endangered and Threatened Species Lists, and this is their primary food support. Well, I started chanting "Cherry Point herring, Cherry Point herring," and it really worked. I mean, the shoreline permit appeals were a big deal, and so it got everyone's attention, and that gave me essentially the platform to get the word out. Through that, we got the director of Ecology, state Fish and Wildlife, and Department of Natural Resources to set up a state herring recovery task force for Cherry Point in 1999. That's brought together a really great group of scientists and experts in a lot of different fields to start figuring this out.

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MM: In the research I've done in regard to this issue, I've found that herring is practically synonymous with Cherry Point. What kind of PR did you do in order to get that message out?

BW: My whole strategy was to get these proposed pier developments appealed. I mean, I'm a little planner up at the Bellingham Field Office, saying, oh, my goodness, this is really important. We need to get this issue to the light of day. So, I started telling everyone I could possibly tell about it. The appeal was really the key because I figured if we could appeal it, elevate the issue to a place where it would actually get people's attention, they'd actually start focusing some money and expertise on it.

MM: Which appeal are you referring to?

BW: Well, we appealed both of them. The first one, by Joe Scheckter in '95 or there about, was concerning Cherry Point Industrial Park, and then we appealed the Pacific International Terminal by Chevron et al in about 1996. Both of those appeals were big news in Whatcom County because the county was saying, we need those jobs. Meanwhile, we were saying, we're killing the project until you show us that you're not going to have this long-term impact on the Cherry Point herring and the ecosystem.

MM: I can imagine headlines in Whatcom County, "Ecology Kills Dollars for Whatcom County," but you could also have, from the environmentalist side, very positive press, "Ecology Saves Cherry Point Herring." I wonder if there was a concerted effort, on the part of Ecology, to create positive press.

BW: Yeah. We did a couple of things that were really smart. For one, when we first started the Bellingham Field Office in 1994, we knew we were coming into a hornets' nest of every kind of issue you could imagine. When my boss, Dick Grout, got chosen to be the director up here, he said, we need someone who really can work with the press because we're going to be in all kinds of trouble here in no time. We'll have to spend all our time trying to defend ourselves if we can't get the stories out right off the bat. Joan Pelley is the person

who we hired. She is extremely good and really experienced. She worked on Governor Booth Gardner's campaign and some others. She'd also worked down at the Legislature. She established a fabulous relationship with the media up in Whatcom County. She would get the facts to them, get them briefed on an issue before they got hit with all their readers calling in about private property rights, complaining we're in cahoots with the Indians, and we just want to take all their fishing rights—all this kind of crazy stuff you get from people who don't have the right information to make the right conclusions. The idea was that when newspapers articles came out, she would work with them to make sure they got what we were trying to get at through our appeal. It wasn't like we were against economic development. We were just trying to make sure that we were balancing that responsibility with responsibility of long-term environmental productivity and all the industries, such as fishing and recreation, that rely on that.

MM: Did you write the appeal?

BW: Actually, I wrote all the recommendations and the findings, and then the actual appeal was written by our Attorney General's Office.

MM: And then did you have to testify in court?

BW: Well, in both of those cases, instead of testifying, we entered into settlement discussions, which went on for three years each. On one side was a team of attorneys from the developers' side. On the other side was our attorney, an attorney from Fish and Wildlife, and then attorneys for the environmental groups. There were 35 people represented by seven attorneys, I believe, in the whole group. That includes the developers and us. Imagine a big room of attorneys, each of whom had caucuses of people they were representing. So, we were all working to come up with a way of balancing the issues out. It was hellacious, but we did it. We worked right through all these issues, and came up with solutions that we thought we could defend in court, both from an environmental and an economic standpoint.

The Scheckter proposal for the Cherry Point Industrial Park has gone away. He was a very elderly guy, and he passed away. Pacific International Terminal is the one I'm still working on today, literally today. I'm working on the sampling analysis plan that has to be finalized and approved before they ever put anything in the water. It's been delayed for a long time, but I think we're almost there. That one may or may not go forward, depending on what the economy does and what they want to do.

MM: You mentioned the involvement of environmental groups. When these issues come up, what environmental groups are triggered?

BW: Washington Environmental Council, North Cascades Audubon Society, People for Puget Sound, Ocean Advocates and the League of Women Voters of Bellingham. I think Sierra Club was initially considering involvement, but then didn't join the effort.

MM: Where do things stand now in terms of the Pacific International Terminal?

BW: As the result of the shoreline permit settlement, there was an agreement that the county would change its Master Program, limiting it to only one more additional dock in Cherry Point, period. At that point in time, Jennifer Belcher, who was the Department of Natural Resources commissioner, agreed that they would not issue another lease for 10

years other than for one dock. There was a potential for having two big docks out there. So, it's whoever gets there first. That is probably going to be carried forward in the new Shoreline Master Program—only one more dock, period. I think we will be able to improve some of the language in the Cherry Point Management Unit, but for the most part, I think it's actually pretty good.

MM: Oh, so you're saying that there will be probably one more dock built?

BW: There's one dock vested.

MM: One dock vested. Meaning that the permit is out there. Is that what that means?

BW: Well, the settlement agreement is out there, which is essentially the permit, with 26 pages of conditions to be met and at least five very major studies to be completed.

MM: Has the developable area of shoreline been pre-designated?

BW: Actually, no. Somebody could propose something anywhere along the Cherry Point Management Unit, which runs about six miles, from about Slater Road all the way up to near Point Whitehorn.

MM: So, in terms of eelgrass and the things that you're trying to protect, there's no one specific area you are pointing to and saying, OK, you definitely need to stay away from here?

BW: There really isn't. This eelgrass where Cherry Point herring lay their eggs runs for 36 miles, from Point Roberts through to Boundary Bay in B.C. and all the way down to Lummi Island, well south of Cherry Point. It's still there. It's in prime condition. It's perfect habitat. There just aren't enough fish coming back. The odd thing about it is that they used to spawn the entire reach, 36 miles. Over the years, the area they've spawned in has gotten smaller and smaller and smaller. Ironically, the most recent area where they like to spawn is around the Arco pier and also right at the entrance of Birch Bay. They do a kind of a schooling thing offshore and appear to come into a little subtidal canyon area, not much of a canyon area, but then they spread out and they'll spawn sporadically in the nearshore because it's very patchy. They spawn one place one year, another place another year, but the eelgrass pretty much is there. The other thing we noted in studying the eelgrass out here is that it actually moves, over time. Its roots are in fine, silty material, and sometimes that material, because it's coming from a feeder bluff, sloughs down over a period of time. So eelgrass moves with it. One year you'll look at it, and there will be eelgrass, and a couple of years later there won't be any eelgrass; it's moved.

After dealing with the herring, I started wondering, well, what other life do we have out there that might be affected? I started thinking about what we used to call "bait fish," which we used to put on our hook to catch salmon. Now they're called forage fish—Pacific sand lance and surf smelt are two of the major species. And Dan Pentilla, at the Department of Fish and Wildlife, has been doing work on these for about 26 years. He couldn't figure out where these guys were spawning for the longest time because he never found them spawning in the water. Well, as it turned out, they spawned way up on the beach. On a really high tide, they come up and swirl around in really soft sand. They have sticky eggs they lay in a little nest, basically. Then they cover it up with sand. About a month later, you get another really high tide, and they hatch out. So they spawn way up on the beach near where you would find driftwood. He finally discovered this in 1986, I believe, which really

wasn't very long ago for a major fish discovery. So, when I heard about this, I checked with Dan and he confirmed it was true. Then I started chanting the words, "forage fish, forage fish." When people would ask, what are forage fish? I'd say, "Well, these are the other fish that the salmon eat besides herring." This led me to start what we called the Creosote Crusade, addressing the creosote logs on the beach.

MM: What was the Creosote Crusade?

BW: Because of the drop in population of the Cherry Point herring, I began walking the beach, looking for what else was hitting these fish. Then I would look down and, at every 100 feet or so, I would see a big, black stub. It was from someone putting a creosote piling into the water, and when they got it into the bottom as far as they wanted, then they would cut off the top off and let it fall in the water. That would wash up on the beach. Guess where? Exactly where these forage fish were spawning. Then it sits in the sun and bleeds out the creosote.

MM: That's toxic, right?

BW: Big time. PAHs (polyaromatic hydrocarbons). So I started asking, could this be something affecting the herring? Well, maybe and maybe not, but it's definitely affecting the forage fish. So that's when I started the effort to try to get some money to clean up creosote. We took out about 110 tons of creosote logs off the Whatcom County beaches two years ago through a grant that we got through Ecology's Terry Husseman fund.

MM: How would you evaluate the environmental protections and the Master Program that governs the Cherry Point shorelines now?

BW: It's really an excellent Master Program, top notch, one of the best in the state.

MM: So, in regard to the protections, if someone were to develop at Cherry Point, they're not going to be able dredge and fill, disturbing the shoreline ecology. That's one of the protections, correct?

BW: Yeah. Also, they're going to have to limit the over-water structure—the size of the pier that shades the bottom. The Pacific International Terminal facility, if it gets built, would be a state-of-the-art facility. When working with them, we were going to be absolutely sure that it was going to be the best possible design. We made them change the direction of the pier somewhat as well as the width and height of it. And we had them put in grating so that we could get as much light underneath the pier as possible and so that didn't kill off the eelgrass. Also, their design includes using really wide, long-span pylons. In other words, their design includes these big concrete pylons instead of the old docks that have tons of old wooden, close-spaced pilings. We wanted to make sure the long-shore drift processes that move sand were not going to be altered. The lights on the pier will be hooded to prevent unnecessarily shining on the water because that can increase predation by night predators on some of the smaller fish or juvenile salmonids. Also, the facility has a 10-foot diameter welded-seam tube that goes out onto the pier. Inside of it are conveyor belts. So, everything that comes from the ships has to go on the conveyor belt. It could be a conveyor belt full of industrial salts, or whatever, that are being transported, yet the goods are totally sealed so they can't blow off the pier and fall into the water. Also, it's got a vacuum hooked up so that negative pressure and the exhaust goes through a bag house. So, there's actually

no dust or anything else that comes out of this system. It's all high industrially welded seams.

MM: Are there any other piers with the level of technology proposed for this one?

BW: Not that I know of. And they agreed to do everything. It is a half a billion-dollar project.

MM: It seems your history of experience with Cherry Point spans a period of time in which there was a real change in attitude about environmental protection and the work Ecology was doing. How would you describe the relationship between Ecology and Whatcom County government now?

Basically, they hated our guts. You see, they would go through all their work, and then we'd end up denying something or challenging them on it. But now, we have such a good working relationship with Whatcom County and the City of Bellingham, that I think they consider us their big brother, their ally.

BW: Early on, we were at such odds with Whatcom County that they didn't want a reason to talk to us about anything. It was along the lines of not wanting to call the IRS, that sort of thing. When Ecology opened the Nooksack Watershed Initiative Office in 1994, which is the predecessor to our Bellingham Field Office, one of the goals was to reach out to the local governments, including the City of Bellingham and Whatcom County governments. They couldn't believe, first of all, that we were coming out to see how things were going, and of course, they didn't trust us. Basically, they hated our guts. You see, they would go through all their work, and then we'd end up denying something or challenging them on it. But now, we have such a good working relationship with Whatcom County and the City of Bellingham, that I think they consider us their big brother, their ally. We help them resolve issues, avoid the bureaucratic mess, and get them through the tracks because we know the systems. Also, I do different jobs for the Shoreline Program. I don't have to wear the black hat all the time. Rather than always being a regulator, saying, no, I'm also a grant officer, helping them do planning and figuring things out and improving public access. So, I've got a white hat some of the times. That helps a lot. Also, the change in how we set our work up administratively, by having this field office, has really improved the relationship. We work so much better with Whatcom County and the cities, and they work better with us.

MM: In what ways is this issue of allowing for further development at Cherry Point indicative of the tension between balancing environmental protections and economic needs as far as these lands are concerned?

BW: Cherry Point is a classic example of that issue. The industrialists are still extremely anxious to move ahead on this 10 square miles of very developable land with access to this world-class, deep-water site. Sailing here and back is a day and a half faster each way then it is to go down south, to South Sound, because a ship will be slowed down by all the traffic and everything else. So you can go a day-and-a-half faster to the Orient, which is a lot of money in shipping terms.

Environmentally, we've got this amazing herring population that is now down to a pittance of what it was—the primary food source for the salmon, which are also struggling. It's at a point now that if they got one, good cargo facility out there, which I think they could, then, from the economic standpoint, they would be efficient enough and feasible enough to serve a really large area. It would include a rail route that would come down with multiple tracks on it—an amazing setup. And the reason it would be state-of-the-art, from an industrial standpoint, is largely because that rail access is close to the pier. Having that much land available to organize is not something you can find in just any city. The Seattle Grain terminal, on Pier 51, is an old terminal. It's crowded. They don't have any way of doing anything like what's proposed at Cherry Point, and the same thing up in Vancouver, B.C. There's no place left.

MM: Your work on Cherry Point has nearly spanned your entire career. What, knowing what you know and seeing what you've seen, are your hopes for the future of Cherry Point?

BW: That's a difficult question to answer. My initial response is that I'd like to see that nothing ever goes out there. It's such a beautiful place. I would like to see that nothing else go out there until we get these herring back to a sustained population. Once they've increased to about three times what they're producing now, I'd feel like we've figured this stuff out. We've seen the herring coming back. We've got a good sense of how to really manage for a sustainable future. We're monitoring these things carefully now.

But if there has to be something to go into this reach, this project is definitely the proposal for a whole variety of reasons. Still, it scares the life out of me to think of the potential invasive organisms. Right now we've got two oil refineries, ConocoPhillips and BP, but those refineries bring their oil from the North Slope, from Alaska. That's not one of the hot spots for these invasive species. The issues with them is that they're bringing in oil down here, so they're taking our ballast water up there, as opposed to bringing ballast water in.

MM: Oh, that's right, because they come in with the oil weighing them down, then they drop it off, and then they suck in ballast water to keep themselves at the right level, right?

BW: Right, so there's a little bit of an issue there. They're sucking in so much ballast water that they're taking all the very little herring and other organisms with it. Intalco comes in only about once a month, and they're coming from Australia with bauxite, an ore that contains aluminum. So, as they're bringing in tons of bauxite, they're taking out our ballast water.

A cargo facility at Cherry Point is going to attract ships from all over the world, from all these hot spots. Those ships are mostly going to be bringing products in and dropping them off. Actually, the ones carrying products in would be taking out ballast water. The ones that are coming in empty would

Those would be the great big ships that want to take wheat and grains from the Midwest and from Canada. Those are the scary ones, because they're bringing in billions of gallons of water to dump out when they load the grain. There are so many scary organisms out there. San Francisco Bay has got like 260 invasive species in there now. It's unreal.

have ballast water in them. Those would be the great big ships that want to take wheat and grains from the Midwest and from Canada. Those are the scary ones, because they're bringing in billions of gallons of water to dump out when they load the grain. There are so many scary organisms out there. San Francisco Bay has got like 260 invasive species in there now. It's unreal.

MM: Earlier you mentioned the green crab, and I'm sure there are others. What kind of damaging effect would that have on our environment?

BW: What could happen in a few years is that we could loose a huge amount of shellfish just from green crab alone if it ever got established here. That's what's happened on the East Coast. The green crab comes from the Baltic Sea, which is where some of these ships will be coming from. It's a little crab, but it's extremely voracious and it loves small shellfish. It just crunches them and eats them up. It will fight against the Dungeness crab, up to a certain size. Then there are these comb jellies, like little jelly fish, but almost like a comb mechanism. Those essentially filter everything, all the food, out of the water. So everything else that depends on that is, all of a sudden, starving. There are diseases. There are marine viruses that can wipe out an entire fishery, like all the salmon, all the herring. If they get these diseases, boom. They're toast.

Just look at viruses for human beings. We're all moving around the planet so much faster. There are so many more of us, which makes it really easy to transfer these diseases, like the chicken flu and the swine flu. We've got the same problem in the marine world, but we don't think of it because we don't see it. But, before you know it, you could have viruses introduced like the ones in Chesapeake Bay that wiped out all their oysters. They lost the entire industry, and they still don't have them back.

MM: What, in terms of the people you've met and the work you've done, has been the positive result of working on Cherry Point?

BW: What's been really, really good is the Cherry Point work group that we put together in 1999 to try and figure out what has happened to the Cherry Point area. Early on, everyone wanted to point fingers at the industries. But remember, that's where the herring still liked to spawn, at the Arco pier. It doesn't mean that they're not being affected somehow, and we're looking at the effluent. Still, it's kind of ironic. The Cherry Point Herring Recovery Team is going to be meeting the first part of this next month for our semi-annual meeting. We bring in consultants. We bring in scientists from all over the world on these issues. Then the industry people will be there, the tribal folks, Ecology. We will all sit down and talk over these issues. The positive part is that when you get that kind of a group coming together it takes away the animosity. You've got industry there and you've got environmental groups there, two parties that in the past couldn't even stand being in the same room. But, with the rest of us there, it mellows it all out. Then, we can have really productive discussions.

Chapter Eight - Dividing the Waters: Determining Yakima River Water Rights

In 1977, the state of Washington entered into what would become the longest-running water rights lawsuit in the state's history. The goal: to determine surface water rights in the Yakima River Basin and its 31 subbasins, from the crest of the Cascade Mountains to the Columbia River. Led by the Department of Ecology Division of the Attorney General's Office and Ecology's Water Resources Program, this ongoing lawsuit includes some 5,300 water users and continues to challenge and refine the practice of Western water law. It is a story of a limited resource fraught with competing issues and demands: drought, irrigation, recreation, population growth, fishing, tribal rights, endangered species and many more. Named after one of the claimants, the Acquavella Adjudication process involves negotiations between the Department of Ecology, several irrigation districts, municipalities, the Yakama Nation, the U.S. Bureau of Reclamation and others. Interviewees for this chapter reveal the legal intricacies of water law as well as the economic, environmental and political realities of water resources, especially for Washington residents east of the Cascades.

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Interviewers: Emily Ray and Maria McLeod

When Less Equals More: A Limited Resource and its 25-plus Years in Court

An interview with Jeff Goltz
March 24, 2005


Goltz

Position held at time of interview:

Deputy Attorney General, State of Washington, since 2001

Education:

- Juris Doctorate, University of Oregon, 1974
- Bachelor of Arts in Political Science, Macalester College, 1971

Maria McLeod: Jeff, this chapter is on the subject of the Yakima River water rights, which span four counties in South-central Washington: Yakima, Klickitat, Benton and Kittitas. I was told that from 1977-1978 you served on this case as one of the attorneys from the Ecology Division of the Attorney General's Office, representing the Department of Ecology. Can you describe where you were, in terms of your own career, when you began working on the adjudication process, and what attracted you to working on water rights?

Jeff Goltz: I graduated from law school, from the University of Oregon, in May of 1974. After that, I worked briefly in Seattle and then in Washington, D.C., for a congressman for a couple of years. Then I moved back to the Northwest where I got a job with the Ecology Division of the Attorney General's Office in January of 1977. At that point, I had never been in court, never filed a lawsuit—I was a pretty green attorney. When I started working for the Ecology Division, there were six lawyers in the division, which was headed by Charlie Roe. Charlie had been there a number of years, and he was one of the leading water rights experts—if not *the* leading water rights expert—in the state. I should mention that 1977 began somewhat like this year, actually. The weather was beautiful, very little rainfall, and with a drought forecast for the summer.

So, starting in February, the Department of Ecology, with Charlie's assistance, started gearing up for what we thought might be a contentious summer. You see, in water-short years we end up with conflicts over the use of water, especially in Eastern Washington, particularly in the Yakima River Basin. So Charlie Roe asked me to help out, doing what most new lawyers do, spending a lot of time in the law library doing research and preparing documents, and poring over other papers that were the brain children of other more senior, more experienced people. I did take a water rights course in law school, but I confess it did not appeal to me. Water rights were not something I was initially attracted to, but that's what I ended up doing for a good portion of my time when I started with the AG's office. It was more happenstance than anything else.

MM: You mentioned the potential for drought in the Eastern part of the state and how that makes the issue of water rights a little more contentious. Could you talk a little bit about the uses of the Yakima River and what the climate is like in that part of the state?

JG: Well, it's called the Evergreen State, but it's not green all over. Some parts of the Yakima River basin only get something close to 7 inches of rain a year, a phenomenally low amount. The Yakima River begins up near Snoqualmie Pass at the crest of the Cascades and flows down through to the Columbia River, with many tributaries flowing into the Yakima. One of the main uses of the river is irrigation, with a number of irrigation districts. There

Yakima River Canyon

have been six large reservoirs built in the basin, many for irrigation, and also for hydroelectric power. There's a strong presence by the Federal Bureau of Reclamation, which has built many of these facilities, and there's something close to a half a million acres in irrigation, or at least at the time this adjudication commenced there were. So, there's a lot of irrigated agriculture. As you may know, there are a lot of orchards, which depend upon irrigation for survival. If, for example, you miss a year on some crops, and you can't grow your hay, that's not too huge a loss. But if you miss a year of water on some fruit trees, especially young fruit trees, you're going to be out a whole orchard. So, water-short years can have a substantial impact on agriculture. Of course, the river water is used for municipal purposes as well, and the Yakima River also produces fish. In fact, the Yakama Nation has reserved treaty rights to fish. So, there's a need—not just for the Yakama Nation, but for many others, recreational fishers as well—to keep flows in the river for fisheries purposes, recreational purposes, et cetera. So, in a water-short year, there's competition among those who want to put the water on the land to grow trees and crops, those who want the water for municipal uses, and those who want to leave the water in the river and in the streams for fish.

MM: You mentioned subbasins. What constitutes a subbasin?

JG: If you look at a map, you'll notice little tributaries going into the Yakima River. Roza Creek, for example, is a given subbasin with 37 claimants. All these different subbasins have claimants, from as few as six to up to a couple of hundred. Each of those would be done in one proceeding. Basically, everybody in a little tiny creek, every tributary into the Yakima River, is to be adjudicated.

MM: In terms of drought seasons and how the Yakima River is impacted, have there been times when tributaries dry up, or part of the river dries up, or reaches a very low level?

JG: I'm not your best witness of this one, mostly because my familiarity with water rights has been substantially confined to the law library, but I have noticed there have been streams that have dried up, and/or there have been impacts on fish. That happens. As I mentioned, I was with the Ecology Division starting in January of '77 until March of 1981. I left the Ecology Division and went elsewhere in the Attorney General's Office and returned to head the Ecology Division from '85 to '88. During that second time I was there, we went into Superior Court in Okanogan County to shut down a farmer—not on the Yakima River, but on the Okanogan River—because that was another dry year, and we went down to try to restrict some uses of water in favor of in-stream water use that was meant to preserve fish.

The rule is: The first person to have the right gets to use the water, and anyone subsequent to that must give way unless they work out some exchange, as in a purchase or something like that.

MM: What kind of conflict did that trigger?

JG: Well, it's the story of Western water law, except updated to the 20th and 21st century. Water law histories tell us that conflicts over the use of water existed back in the 1800s. Farmers withdrawing water for agriculture may have had conflicts with other farmers or maybe with miners who were using water. If the water got too low, there wasn't enough for everybody. We're getting a little bit into the backbone of water law here. Water law was first developed

by common law and then by statute. The first person to take water out of the stream and use it—put it to a so-called beneficial use—had the prior right. Imagine if someone took water out of a tributary to the Yakima River and irrigated some land with it in 1880. Then, in 1885, someone upstream from that person took water out of the stream and irrigated with it, and later, in 1890, the stream dried up—such that there was only enough water for one of those two farmers to use it. The one who had used it first, got it. So that's why it's now known as "first in time, first in right," and that's pretty much the universal rule, at least in the Western United States. The rule is: The first person to have the right gets to use the water, and anyone subsequent to that must give way unless they work out some exchange, as in a purchase or something like that.

MM: So, this still holds true today, first in time, first in right?

JG: Right.

MM: Are there any circumstances where, let's say that person, first in time, has an orchard they've been irrigating, like you said, since 1880, and then someone down the road begins growing wheat in 1890. So the person in 1880 has some precedence there. What if they were to sell that farm to somebody else? Does that person buy their water rights?

JG: In general, yes. Unless there is some contract to the contrary, and approval by the Department of Ecology to change the place of use of the water, the water right stays with the land.

MM: That's interesting. Before we head too deeply into the specifics of individual water rights, I'd like you to talk generally about the function and significance of the adjudication process in determining water rights. Could you describe that process?

JG: Sure. As I mentioned, the law is first in time, first in right, and back around the time of statehood, right around the turn of the century, 1900, all that was necessary to get a water right in the state of Washington was to divert water out of the stream and start using it. That gave you a right, at the time, to start putting the water to use. You can see how it becomes a contest as to who has what water, who got what water right when. Those are called appropriative water rights because they're based on appropriation from the stream. There's another type of water rights called riparian water rights. To put it simply, such rights existed because one's property was next to a stream. You can see where, in times of shortage, it would be hard to figure out who was entitled to what. There were no records of who had what appropriative rights and who had what riparian rights. So, in 1917, the state of Washington Legislature adopted the Water Code of 1917 that basically said, from now on, everybody who wants a right to use water from surface water had to go to what was then the State Hydraulic Engineer—what is now the Department of Ecology.

So, from 1917 on, you can figure out who had the permits, but there are always those rights that were obtained prior to 1917. So how do you figure out who has those? Well, the 1917 Water Code defined that, and set up a series of provisions for so-called water rights adjudications for given water courses. The person who would have had the role similar to what is now the Director of Ecology, then State Hydraulic Engineer, would go into Superior Court and file something called a "Statement of Facts." It's like a complaint in a regular civil litigation, but by statute, it's called a Statement of Facts. It sets forth the water body, describes it, and states why we need to adjudicate the rights. Then the supervisor was to

serve a copy of this to every known claimant who had a right to use water in that basin. Then all the claimants would come into Superior Court in a proceeding to prove their water rights. Now, if you have a permit, it's pretty easy. You just show your permit. If you got your water permit in 1918, you say, here's my permit, and I'm still using it. So, that's easy to prove. But if your grandfather took water out of the stream in 1890 and started using it, then you've got to go back and somehow prove that, including where the water was put to use, for what purpose, and in what quantity. That is harder to prove, especially if your grandfather has passed away and can't be a witness. Then, after the adjudication, the state agency would have a list of everybody who has a right to use water, and the priority dates. So, if, after the adjudication, there is a water shortage, it would be easier for the Department of Ecology to figure out whose water to shut off. The department would say to the person with the most recent water right—generally called the most "junior" water right—you have to stop using it to allow those people with the older, or "senior," water rights to use the water.

MM: It sounds like that might be a difficult directive to take.

JG: Well, the other thing you have to remember, though, is that at some point, the market takes over. This is exactly what happened in Okanogan County in 1985 when I spent some of my summer over there. There was someone with a recent water right who had an orchard, and he had to shut down because it was a water-short year. Well, as I recall, he purchased a water right from another farmer who could afford not to plant, let's say, hay. So, if you have an orchard, and your trees are at risk with your water shut down, perhaps the thing to do is to buy a water right from someone who had planned to use it for a one-year crop like hay.

MM: It's good to know there are some creative options for these farmers. I'm wondering, in regard to the adjudication of the Yakima River, what triggered that particular water rights adjudication in 1977?

JG: It was a combination of things, I believe. I wasn't privy to the inside conversations, but from what I recall, that was a drought year, and we knew that was going to cause problems. So, we were gearing up. Partly the process was driven by the drought, partly it was just long overdue. Of course, these adjudications take time. We knew there was no way we were going to adjudicate the whole river then, but it was important to get started. If you were to ask the members of the Legislature in 1917 what they had in mind when they passed the 1917 Water Code, setting up the permit system, and also setting up systems to adjudicate rights for which there were no permits, I think they would have said, we want the department to go out and have these adjudications all over the state and get it done. Then we'll have one big orderly system in the state of Washington. As I understand it, at the time it started in the '20s, there were a number of adjudications, including some on small parts of the Yakima River Basin, but at some point, cost became prohibitive. The Depression came, and there wasn't money to spend on these things. There weren't many adjudications for a long time. The longer you wait, the more difficult they become. If you're going to prove rights that were developed back in the 1890s and 1900s, at some point the people who have personal knowledge of how the water was used aren't going to be around anymore. As a matter of fact, that time had probably already passed, so there was the need to get going.

MM: Is the whole state, all our rivers, are they all adjudicated?

JG: Nowhere close.

MM: So that's something that Ecology is working on?

JG: Yes, but frankly, I don't know the status of those. Some have been started and completed, I believe, since the Yakima Adjudication began. There's a number that are adjudicated, but there's a number that aren't. Now, there's one other statute that's probably relevant here, which was in 1967. Remember, you could have developed rights to water, pre-1917, just by taking the water out of the stream and putting it to use, but the problem was, we had no record of who had what. Well, in 1967, the Legislature passed the Water Rights Claims Registration Act, which required everybody who might ultimately claim a right to file a "Statement of Claim" with what was then called the Department of Water Resources, which soon thereafter became part of the Department of Ecology. So they had to file a claim, and that wasn't for an adjudication, but it was to at least somewhat define the set of possible claimants in an adjudication. For example, in the Yakima River Basin, there were about 4,300 of these claims that were on file with the Department of Ecology, but there were only about 268 permits that had been issued under the 1917 Water Code. So you can see where there was not very much certainty as to who had what right, if we had about, as I recall, 4,300 claims and only about 268 permitted water rights.

MM: You know, in regard to pursuing this chapter, this subject, for Ecology's oral history, some people commented that the Yakima was really the most complicated adjudication. It's an ongoing adjudication, if not the most contentious among the adjudications. I wondered what your thoughts are on that. Do you feel that's true and, if so, or even if not, what separates it from other adjudications in the state?

JG: Well, size, for one thing, and that's just one thing. In 1917, many of the adjudications that were contemplated were probably for streams where you might have 10, 15, 20 or 30 water users. Everyone was interested in what everyone else's right was, because everyone else's right can impact, in times of shortage, what their use of water can be. So, if you've got a water right adjudication with 30 claimants, you can get them all in a room. You can have your hearing in one day and have everyone prove his or her rights with everyone there. Well, in this water rights adjudication, there were 5,300 plus named potential claimants. You can't get them in a room to figure it out. You can't do it quickly. So, the time and processing of it made it much more difficult. The other thing that made this very complex—so complex that I don't think I can describe it very well—is that there were some prior adjudications, a number of prior federal court cases, that reported to define rights for certain claimants. There were several pieces of federal legislation that purported, or arguably defined, rights of certain irrigation districts. Then we had the Yakama Nation as well, which had reserved rights to water of an undefined and unknown amount. So, part of the process became the issue of interpreting federal legislation. We also had a lawsuit commenced by the Yakama Nation in federal court, prior to this adjudication being commenced. So, there was a bit of jurisdictional push and pull, as to where these rights were going to be adjudicated, in federal court or state court.

MM: You said that there were 5,300 named potential claimants. Can you tell me how claimants are defined? For example, is a municipality considered one claimant, or are we

talking about the individuals who live in a town? How would you categorize and describe the kind or types of claimants who participated?

JG: One of my tasks, when I was a new lawyer working in the library, was to try to figure out who the claimants were. For example, I live in Olympia, and the City of Olympia holds the water rights, and I get my water from the City of Olympia. I, personally, don't have a water right under state law. So, for example, in the Yakima Adjudication, the City of Yakima was a claimant. The municipal users in that area didn't have to be parties to this, but the City of Yakima, just like all the other cities and towns in the basin, did. Also, the irrigation districts were claimants. Now, if you're a farmer within an irrigation district, you may hold the water right, but the water rights adjudication statute says that we only need to serve the district, so that made it easier. Otherwise, it would have been a much larger undertaking to serve every individual user who got water for an irrigation district.

Rosa Dam, located on the Yakima River

MM: I'm trying to understand how these claimants find you. How do you get these people to come in and participate in this process? I mean, how do they even know this legal process is occurring and that they would want, or should want, to be a part?

JG: Remember, this was 1977. The director of Ecology was Web Hallauer, who was appointed by Governor Ray in January of 1977. He's from Okanogan County, a farmer. So he was used to these issues, and he thought it was important to commence this adjudication. So we started working on it. There's a statute that says you have to join all "known claimants" to the use of water. We knew that everybody who had a permit under the 1917 Water Code was a known claimant. We also knew that everybody who filed a Statement of Claim with the department, pursuant to this 1967 Claims Registration Act, was a claimant, and we also knew that the United States of America was a claimant.

This is an aside, but it's relevant to the story: There's a so-called McCarran Amendment in federal statute that says a state that adjudicates water rights can join the federal government. Normally, the principal of sovereign immunity means you can't sue the king—in other words, you can't sue the United States—unless it consents. The McCarran

Amendment says that, in effect, the United States consents to being brought into state court by state water resource agencies and has, not only the United States' water rights, but the water rights that the U.S. is a trustee for—that is to say, tribal water rights. In the case of the Yakima River, we knew that the United States represented the interest of the Yakama Nation. Also, they have interests in the Bureau of Reclamation, U.S. Forest Service and the Yakima Firing Range over in Yakima County—all of whom used water. So we knew the United States was a claimant. But some of these other claims and permits were somewhat old, so we had to update and try to find current owners. We also had to do service by publication in the same way that if you're trying to sue somebody, you don't know everybody you can serve, but you have to make your best efforts to find everybody. So we publicized this a lot, we named as many people as we knew about, and served the rest by publication. The other thing we had to do, pursuant to state law, was to make a filing with the county auditor. Because water rights are a type of real property, and state law says that when you file an action affecting real property, you have to file or record with the county auditor, a so-called "Notice of *Lis Pendens*." *Lis pendens* is a Latin translation, meaning, literally, action pending, or litigation pending. So if someone in the Yakima Basin were to buy property near the Yakima River in, say, 1980, he or she would have notice of the water rights adjudication. If that person had a water right claim, he or she could then participate in the adjudication and protect that claimed right.

MM: So, this isn't like receiving a subpoena, when all of a sudden your heart sinks because you don't want to be required to appear in court. This is something that, when people hear about it, they want to respond to, they want to make their water rights known, and they want their rights established. Or, do you receive varied responses?

JG: Well, I'll bet there were those whose hearts sank, but I think that you're right, they want the end result to be for everyone to have clarity. They want to know not just what their rights are, but what everyone else's rights are, and with that clarity will come some orderliness in this whole water rights administration process. So in theory, it was in everyone's best interest to participate in this. What might make people's heart sink, however, is that this might be an ordeal of litigation where they might have to spend money to hire a lawyer, or spend a lot of time figuring it out on their own. Then, also, there are those who may think, oh my gosh, I've been using water all these years, but maybe I don't really have a water right. That can be scary as well. So I think there probably were mixed feelings.

MM: I'm still somewhat overwhelmed by this number, 5,300 claimants, and this vision I have of you as the new attorney, and Charlie Roe, who was the lead attorney, just the two of you in 1977, working on this issue. Is that truly the way it was?

JG: Well, as far as Ecology Division lawyers, there were some other lawyers in the office. We had various lawyers working on this adjudication at different times, but a lot of the work was done by staff people at the Department of Ecology. For example, there was a guy at the department named Ben Weisberg; it seemed he'd been there since 1889. Not that long, of course, but it seemed that way. He really knew the history. Ben was the one who actually drafted the first Statement of Facts and did much of the work on the Notice of *Lis Pendens*—the document that gives notice to everybody. By the way, that document was 300 and some pages long as I recall, and included all the property descriptions. So, not all that work was done by lawyers. I'm not even sure I proofread the Notice of *Lis Pendens*. I

worked on the Statement of Facts, though, but at that time, the process involved many people from the Water Resources Programs, upper management as well as people in the field, spending weeks, if not months, over in the Yakima, preparing and ascertaining who were the "known claimants," creating real property descriptions, and so forth. So there were a lot of people working on it. It wasn't lawyer heavy.

MM: So there were related activities happening at headquarters and in Ecology's Central Regional Office in Yakima, and there was your legal work, and the work of other lawyers, but then you're saying there were also people out in the field, going house to house, or ...?

JG: I don't know if they went house to house early on. Later, they did some of that I think, but not in the preparation of it. Let me digress a bit to give you a better sense of Ecology's role. Once we prepared the Statement of Facts and filed it in Superior Court in Yakima, that was the point in the process when the judge issued an order telling everybody when they had to file a claim in the adjudication. Once the claims are filed, then the Department of Ecology becomes the referee. It's like an arm of the court. Sometimes, in similar proceedings, they're called special masters. The referee then takes the evidence and makes a report to the Superior Court judge. Then the people who don't like the report—perhaps the report states that a certain person's water right is a 1950 water right, and they thought it was a 1912 water right—that person, if they disagree, can file exceptions to the court.

MM: Regarding your work on this case—which I understand took place mostly from '77 to '81, and then you headed the division in '85 to '88—what were the moments that seemed most indicative of the magnitude of this project?

JG: Well, the magnitude was apparent from the start. Many of these kinds of water rights cases got litigated up—some of them got litigated up to the state Supreme Court. They were small potatoes, so to speak, with as few as a hundred claimants, and here we were with the Statement of Fact being something like 64 pages, 55 of which were just the names of the parties. The magnitude of it was scary. When we started, I didn't have a vision of how it was going to work. I'm sure Charlie Roe had a vision, because he would have had one, but I'd never been through one of these before. So in my mind, it was like we were going from nothing to the biggest case in the world. I was just starting as a lawyer and I had only one case, a little $5,000 oil spill case in front of the Pollution Control Hearings Board. For me, that was a big deal. Then I had a little tiny dispute over on the shorelines in Grays Harbor County, about some construction of vacation homes on the dunes, before the Shoreline Hearings Board. For me, that was a big deal, too. Then, in addition, Charlie says, oh, would you work on this case that's got 5,300 claimants? This might take five to 10 years to complete. I was overwhelmed. The other overwhelming aspect was that I couldn't make a mistake. I say that because one of the things we had to figure out first was, whom do we serve. Do we have to serve everybody, or can we just serve the irrigation districts? So, I spent a lot of time working on that, and we determined we only had to serve irrigation districts. We don't have to serve individual users of water within districts. But if we got that wrong, and we went all the way through the adjudication, and we didn't do that right, we would have had to start over. The prospect of starting over, after five years, wasn't very appealing to anybody. So there was pressure to get it right. So, that was the other thing that was always overwhelming. I was diving into unknown areas of law about the rights of the United States and the rights of the Yakama Nation, not to mention the procedural issues we had to address.

MM: What were those procedural issues?

JG: One was, we had a lawsuit by the Yakama Nation to define their rights, which was filed in U.S. District Court for the Eastern district of Washington, but it didn't define everybody's rights. Then, the Department of Ecology filed the Yakima River Adjudication, which was called the "Acquavella Adjudication," named after one of the claimants, in November of '77. The Yakama Nation case was filed before that.

MM: How did the Yakama Nation case affect the Acquavella case?

JG: After the Acquavella case was in Yakima County Superior Court, pursuant to a federal statute, the United States, as a party, removed it to federal court. That means they filed a petition with the Superior Court that basically said, we're removing it to federal court because there are federal issues. At that point, the state court loses jurisdiction. So, it was in federal court, along with the Yakama Nation lawsuit. Again, pursuant to federal law, we can move to remand it, making it our burden to get it remanded back to the state court. So, we filed that motion, and I spent a lot of time at the law library, doing the work young lawyers do, as well as preparing the motion for the federal court asking it to defer consideration of the Yakama Nation case while our state adjudication is going on. So, we had several arguments on this issue, including some procedural skirmishes as to whether or not a deposition by the director, Web Hallauer, should be taken. We had several arguments, and I got to argue a couple of those—my first federal court arguments, and I was more nervous than usual. We got the federal court to rule that the United States could not take Web's deposition, but only after the judge chastised me for being too verbose in my oral argument. I felt like crap at the time, but at least we won the motion.

MM: What were the Yakama Indians claiming as their right?

JG: Well, they clearly had a right. They were going into federal court to define their federally reserved water rights, and that's clearly a federal issue. The question then was, well, you've got two cases going on, how efficient is that? It didn't make any sense—at least this was our point—to have two courts, a state court and a federal court, all trying to figure out the same things at the same time. So basically, the federal court said, that's right. We're going to remand the Acquavella case back to state court, and we're going to stay, which means to put on hold, the Yakama Nation case. The Yakamas ultimately participated, as I understand it, in the state adjudication, and the tribal rights were ultimately adjudicated. Although the adjudication is not final at this point, that issue was decided and then appealed to the state Supreme Court, and the state Supreme Court, in 1993, issued an opinion that defined the Yakamas' rights. This is another one of those elements that show the scope of the adjudication. It's so big, how do you manage it? It's not like the 50-person adjudication where you get everyone in the room and figure it out in a few days.

MM: What was done to make it manageable?

JG: What the Superior Court did was to divide this up into four pathways. One pathway included the large users—the large irrigation districts, including the Bureau of Reclamation, and so-forth. Another pathway was the tribal reserved water rights. A third pathway included all other federal reserved rights, meaning the Fish and Wildlife Service, Forest Service, et cetera. The final pathway, which was divided up into 31 subbasins, included the individuals. They started adjudicating those subbasins one at a time, which has been the

most time consuming part of the process. So, that was the process to try to manage this whole thing, one step at a time. That's why there was a decision on the tribal rights on one pathway, which then went up to the state Supreme Court where it was resolved. As I understand it, the referee handled the hearings in the subbasins. The Superior Court judge handled the hearings in the other pathways.

MM: How was this adjudication received in Yakima when it was filed, and was there anything unexpected that occurred with the filing itself?

JG: I can't remember if we went over to Yakima the night before or that morning. But I recall flying over with Charlie Roe and some people from headquarter's Water Resources Program, perhaps Glen Fiedler and Gene Wallace, I'm not sure, but we formed a little entourage. Then people from the Yakima Office, Bill Smith probably among them, met us and we went to the courthouse to file this thing. I still remember, either the day before or on the way over, we knew there were going to be press there, as much press as you're going to find in Yakima in 1977, with the newspapers and a radio station or two. At that time they maybe had two TV stations there. It was decided that Charlie would do the TV interviews because he was the head guy, and I got relegated to the radio guy. But we thought we'd better have the same line for the reporters. So we were trying to figure out, well, what do we say when the one question is going to be, how long will this last? We thought, oh boy, we'd better not underestimate, because we want to be credible; so we decided to say it might take as long as 10 years. Well, of course, that was almost 28 years ago, and it's still in process. So, we blew that. As I understand, the attorneys now working on this are no longer giving estimates. But the point is, it was a big story for Yakima, and it was a big deal for the court, for the whole basin. We knew there was probably going to be some federal court litigation, and water is really important over in that part of the state.

When we walked into the courtroom, one of the deputy clerks said, well, we've been expecting you. So, we filed the Statement of Facts, and then the TV cameras wanted to do interviews, and the radio guy was going to interview me. I said, "Well, excuse me, I have to go to the Auditor's Office because I have to file this other document, this Notice of *Lis Pendens*." So he followed me into the Auditor's Office. I don't know if they were expecting us or not, but I had this 300 and some page document, and I said, "I need to file this." And she said, "you mean, you have to *record* this." I remember thinking that there might be a fee, so I had my checkbook with me. I knew I would get reimbursed, of course, and that perhaps I'd be writing a check for a $25 fee or something close to that. You have to realize that what she was going to do was record this for every parcel of property in the basin. Apparently, I either overlooked this, or was looking at a different statute, but she asked, how many people are on the pleading. I said, "Well, it's 5,300 and something," and she went over to the adding machine and punched that in. Those were the calculators that made noise, unlike the ones we have now. And it made noise for quite a few seconds as she multiplied the number of parties by the number of pages, applying a certain fee for the first page, and less for every other page. Then she said, that will be—I forget the actual number—something like $25,360. All of a sudden the guy with the radio station flipped on his mic. I'm sure he thought he was onto something. I responded to the deputy auditor facetiously, "Will you take a check?" It was meant to be a joke, and she said, "Well, of course." I said, "No, seriously. I can't do this. I thought that since we're the state, we wouldn't have to pay a fee." She said, "No, I think you do." So, I said, "Well, I can't do it right now, how about if I call you tomorrow." And that was OK. So, I left it with her, and

now the radio guy, who I think was feeling slighted because he was stuck with the rookie lawyer instead of the senior guy, finally got a story. He got to interview me about my embarrassment in front of the auditor.

MM: Did that go on the air?

JG: I assume it did. I'm not sure, but it wasn't my proudest moment. Ultimately we worked it out, and we didn't have to pay a fee. There may have been some appropriations later on because it was such a huge burden on the Yakima Clerk's Office. Everybody in the Clerk's Office was working to get all these Statements of Claim filed, and the statute requires the filing of two copies of every Statement of Claim and requires the clerk to take one copy and send it to the Department of Ecology, so they were being asked to do all sorts of extra stuff that they weren't budgeted for. But they were just as cheerful and helpful as they could be.

MM: What, for you, do you think were the greatest challenges in representing Ecology in the Acquavella Adjudication?

We thought the process would take five to 10 years, and it's turning out to be closer to 30 or more. At the end of all this, it will be a good product. In the future, regulation of water rights in the Yakima River Basin will be certain, predictable, and fair. The challenge was in getting it right and being able to live with the enormity of the task.

JG: Well, I think that this was contentious, and, like anything else, when you're a public lawyer, you have to not be contentious in a contentious case. You have to be dignified and polite and respectful and really represent the public in this. So I think the big challenge is to not only to handle all the legal work, which was a lot, but to keep up with the public who would write in for needed information. Another challenge was to get it right, making sure there wouldn't be any mistakes. We thought the process would take five to 10 years, and it's turning out to be closer to 30 or more. At the end of all this, it will be a good product. In the future, regulation of water rights in the Yakima River Basin will be certain, predictable, and fair. The challenge was in getting it right and being able to live with the enormity of the task.

MM: Your comments about the enormity of the task make me think about what might have been the differences in the administrative processes of conducting an adjudication for a 100 claimants as compared to 5,300. It seems like some of those protocols may have needed to be altered? Did that occur?

JG: One thing we confronted right off the bat was the Statement of Facts. Remember that our Statement of Facts was 60-some pages, 55 of which were just names of people. So, the actual text of the Statement of Facts was about seven pages long, and then we had 55 pages of names. Well, by statute, we have to serve a copy of this pleading on everybody—by court rule, we have to do that. Five thousand, three hundred pages multiplied by 60-some pages would break the Xerox budget for everybody. So we went to court and asked the judge to authorize an abbreviated service, one where we would, in effect, do a simpler caption. Rather than saying, in the matter of determination of rights to use water in the

Yakima River Basin, Department of Ecology, Plaintiff, v. James J. Acquavella and Ellen T. Acquavella and Bill Allison, Loretta Allison and Cecil Allison—going all the way down A to Z—we said, we want to do James J. Acquavella et al, and saved the other 55 pages from being printed 5,300 times. That was one of the things we were able to change for processing purposes. Also, breaking the case up into the four pathways, as I mentioned, including the individual claimant pathway, by subbasin, was fairly unique. Then we got stalled figuring the remand issue, as I said. That took a year. Then they had to worry about who we had to serve; then we took some time to do a Statements of Claims. So, the department really didn't get going with the actual hearings until 1987 or so, and we had originally predicted it would be over about then.

MM: What if this adjudication hadn't been done for the Yakima River Basin and its subbasins? What state would water rights be in along the Yakima River, and what kind of conflicts would have resulted without an adjudication process?

JG: As I understand it, since this adjudication process has started, conflicts have been easier to resolve. There's hope, at least, that this would make for a more orderly process. I've been outside the loop, and no longer working on this, but regulating without knowing who has what rights can be very problematic. I think the short answer is, I don't know, but the longer answer is, it's got to have made it easier.

MM: It sounds like one of the really important pieces to this process was setting up a procedure, a standardized protocol, and defining the issues. If you don't have that, you have these people come in, case-by-case, and you're reinventing the wheel. Would that be a correct characterization?

Ecology's Robert Garrigues, measuring the static water level of an irrigation well in the Yakima River Watershed.

JG: Yes. In a time of shortage, you have a first in time, first in right doctrine. You've got to know who's first in time, and it's very difficult to do that if you don't really know for sure when the person's right arose. A person could say, wait a second, I have a right that goes back to my great-great-grandfather, in 1894. How do you know that? How do you know how much the water right was for? Let's say you're someone with an orchard and a relatively new water right, which you can't use because it's a water-short year and other users have precedence. You would need to buy a water right from somebody. How do you know that person can transfer that water right to you? The Department of Ecology has to approve a transfer, but how would it know if the person wanting to transfer the right actually has a right that can be transferred? No doubt, this has been a major undertaking and a huge commitment of resources, but, in theory at least, it should make that sort of call easier down the road, and maybe this year, with a potential drought, will be a test of that.

JG: Remember now, when these adjudications start, they're filed, and it's a court case. Pursuant to statute, the judge appoints a referee, and, in this case, Judge Stauffacher retained control, and the referees conducted the vast bulk of the hearings. The judge handled the major claimant pathways and also handled many procedural issues. I think this gets back to your question regarding procedural modifications, because, with something this big, you couldn't afford to do anything wrong. You couldn't have the referee do everything and then go to the judge, and have the judge say, oops, you made a mistake, go back and do it again. But to answer your question, if a claimant doesn't like the deal he or she has been given by the referee, then that person can file exceptions with the Superior Court. The Superior Court rules on the exceptions, ultimately enters a decree, and then that can be appealed to the Court of Appeals or the state Supreme Court. And, if there is a federal question as related to scope of federal reserved water rights, then that could go from the state Supreme Court to the U.S. Supreme Court. That has happened in some states. The other thing that's going on now, as I understand it, is that the judge has issued so-called "conditional final orders" in a number of the subbasins, and then, at some point, all those conditional final orders will be incorporated into one final order. That may or may not be appealed. We'll see.

MM: Can you tell me who Judge Stauffacher was? His name gets mentioned quite a bit in relation to this adjudication process. Did he proceed over all the hearings?

JG: Yes, and I think he's still on it. He's a retired Superior Court judge, and he's been enabled to stay on this case. He was assigned this case in '81, I believe. When the case was originally filed, it was assigned to Judge Hettinger. I don't know how it came to be handled by Judge Stauffacher. Maybe he was available, or perhaps it was his willingness. Taking on this case was biting off a big task, but I think he recognized early the need to be in charge.

MM: Looking back at your work, and the work others did during this time, what do you think is the historical significance of your work and the important lessons learned in the process?

JG: Well, this is the first case I ever filed in court, and it's still going on. I think that the time to really look at that question is when this is over. I think it would be a real good thing to have some sort of celebration when the adjudication is finally over and assess the value of all this work. Maybe this summer, if there are going to be water shortages, we'll get a sense of how this is working.

I think as far as big lessons go, one is to be thorough, and I think we have been. Charlie Roe was very proactive at the front end in getting this thing going. There is a value in having been creative, taking an adjudication statute, which was probably envisioned to be applied to maybe one subbasin at a time, and apply it to the entire river basin by breaking it up into the pathways. Being flexible within your statute, that's a good lesson. I think that Charlie and the others who worked on that were really creative in doing it. There was also creativity and flexibility in getting amended service of process, the abbreviated summons to make things cheaper and easier. So, I think those are some of the lessons, but I guess we'll have to wait and see when it's over, and we're all set, and see how it works.

MM: When it is finally over, and they do have that celebration marking the end of the Acquavella Adjudication process, are you going to attend?

JG: Well, assuming it's completed in the next 20 years or so, and I'm still around, you bet. I'll be there.

The Referee on the Bench

An interview with Bill Smith
July 12, 2004


Smith

Position held at time of interview:

Retired, Washington State Department of Ecology, 1970-1997

Formerly, Water Right Adjudication referee, Water Resources Program, Washington State Department of Ecology, 1979-1989

Education:

- Post-graduate study at Boston University, University of Washington Law School, and National Judicial College
- Bachelor of Science in Geology, University of Massachusetts, 1956

Emily Ray: Bill, I remember meeting you early in my time at Ecology. My recollection is that you were already deeply involved in water rights. At what point did you start work on adjudications?

Bill Smith: I actually joined a predecessor agency to Ecology, the old Department of Conservation, back in April of 1959. That agency changed into the Department of Water Resources in 1968, and was incorporated into Ecology in 1970. So, from 1959 to roughly about 1972, I was a hydrogeologist for those agencies, working in the water rights field, statewide, for my first few years, but then concentrating my activities in Eastern Washington for about the last six years of that period in the hydrology of basalt aquifers in the Columbia Basin. In 1974, I moved to Yakima, and joined the agency's Central Regional Office. I was the Resource Management supervisor there in Yakima from 1974 until about 1979, at which time I transferred into what you'd call the adjudication function. I was promoted into the category of Water Resource Adjudication referee, and I was responsible

for statewide adjudications between 1980 and 1987. I conducted probably about nine river basin adjudications, all in Eastern Washington. In 1986 and until my retirement in 1989, my activity was focused on the Yakima Adjudication.

ER: In 1977, the Department of Ecology initiated a lawsuit. This lawsuit requested that the Yakima County Superior Court adjudicate surface water rights in the Yakima Basin. Why was this necessary? Why couldn't the Department of Ecology, which was already issuing water rights, just continue doing what it had been doing?

BS: Actually, the issuance of water rights in the Yakima Basin really didn't have anything to do with the adjudication. The adjudication is a process for determining existing rights. Other than a few isolated instances, there was not, to my memory, any recent surface water rights issued in the Yakima Basin. The department, for years, considered the stream system to be fully appropriated, and no water was available for appropriation. The basis for that goes back to 1905 when the United States Bureau of Reclamation went into the area and developed reservoirs to augment stream flow. There wasn't sufficient water in 1905 to satisfy the uses at that time. In regard to 1977, there were two things that precipitated the lawsuit, as far as I can recall. One, that was the year of the drought, and everyone in the Yakima Basin was jumping up and down, trying to get enough water to sustain their crops through the year. When I say everyone, I mean the irrigators. Secondly, there were conflicts between the major irrigation districts and the Yakama Nation over the water for the out-of-stream uses for irrigation and the in-stream uses for the fisheries—meaning the water that the Yakamas believed they needed for the fisheries resource and their tribal needs. When the Yakamas filed suit in federal court, the state felt that if there was a determination of rights to be made on the Yakima River system, it was better done in state court than in federal court. That was the reason that the Acquavella case was filed in October of '77.

ER: And how did the name Acquavella get attached to it?

BS: When an adjudication is initiated, generally a *lis pendens* is filed with the court, and that's basically a listing of all of the claimants or potential claimants, "defendants," in a case. It's usually filed alphabetically, and in the case of the Yakima Adjudication the names were derived from all those holding water right certificates and all those who had filed claims pursuant to the Water Right Claims Registration Act, which is Chapter 90.14 Revised Code of Washington. Because it's an alphabetical listing, of course, the first names that appear in there always start with "A," and, in most adjudications you'll find that it's the *Department of Ecology v. Anderson*, or the *Department of Ecology v. A & A Building Supply* or something similar. The name Acquavella is one of the claimants in the case. His name probably wasn't first on the list, but I think it was Charlie Roe, who was then head of the Ecology Division of the Attorney General's Office who noticed the name Acquavella. Someone advised Charlie that the Spanish translation might be related to "smooth water," so he chose that name for the case. It was appropriate anyway.

ER: Seven years passed between 1977, when Ecology called for the adjudication, and 1984, when Superior Court finally referred the case to Ecology for the appointment of a referee. So, issuing water rights was not the issue during that time, the issue was priority rights. How were the decisions made about priority of rights during those seven years before the adjudication?

BS: The department never did get into an active regulatory posture on the Yakima River or its tributaries, quite frankly, other than a few of the tributaries, which had some court decrees on them. The rights in the Yakima system were always a kind of mystery to everybody. No one knew exactly who had what rights to what water. There were always conflicts, consistent conflicts, over the use of water. The Department of Ecology, to the best of its ability, tried to manage those conflicts. There were stream patrolmen who were established, and the local water master tried to assist in the regulatory posture. Ahtanum Creek also was adjudicated, but that was, I think, done in federal court. So, it wasn't so much the department allocating water rights. They weren't doing that anyway, it was more of a regulatory thing.

The rights in the Yakima system were always a kind of mystery to everybody. No one knew exactly who had what rights to what water. There were always conflicts, consistent conflicts, over the use of water. The Department of Ecology, to the best of its ability, tried to manage those conflicts.

ER: With regard to the federal lands, had the federal government issued water rights independently on federal lands?

BS: No, the federal government does not issue water rights. The only nonstate-issued water rights would be reserved rights of the Yakama Nation, or any other Indian entity, and there might be some reserved rights of the United States in connection with Forest Service lands, that sort of thing, but the United States federal government does not issue water rights. They can't do it. They can reserve rights. They can comply with state law, which they have done somewhat, but they can't issue water rights. That function is reserved to the states.

ER: So, how did you come to be involved in the adjudications on the Yakima?

BS: Well, I was the adjudication referee for statewide adjudications, as I previously had mentioned. I think I had done seven or eight at the time that the Yakima suit was filed. I did Little Klickitat River and Cow Creek, and Deadman Creek, and Antoine Creek, Duck Lake; quite a few in Eastern Washington. When the case was initially filed, the first referee appointed was David Akana. David was appointed around '84, and I worked with him in doing some of the groundwork in setting up the referee's office, although I was not directly involved in the Yakima adjudication at the time. I had my own work with the statewide adjudications, but I did give Dave a hand in what he did while he was there, until 1987. He held one hearing on some residual claims, and he resigned shortly after that. It was about that time that I was appointed.

ER: I'd like to hear about what your average day was like as a referee.

BS: Well, there really isn't any average day. It would depend on what stage we were in on any adjudication. Prior to holding a hearing, there was a lot of work to be done. I would go through all of the claims that had been filed. I would assign a court time value to each claim, depending on its complexity and the number of exhibits that I felt we were going to have to have. I would then develop a schedule of claimants to come before me in a hearing. For example, some days I would schedule three claimants for that day, other days I'd

schedule eight, maybe 10 claimants for the day. If the claimant was represented by an attorney, I'd probably schedule a little more time for that hearing. In addition to scheduling the hearing, I would also have to arrange for a hearing place. I would have to coordinate with the court on that as well as with the court reporter to make sure the reporter was available for the hearing. I would also have to coordinate with the Department of Ecology adjudications staff to make sure they would have people available during the time I had set for the hearing. The whole Yakima adjudication was a huge, huge undertaking; so, the case was bifurcated into two major parts. The court took the major claimants and the claims of the Yakama Nation. The major claimants were those irrigation districts and major water users on the main stem of the Yakima River. Generally, Judge Stauffacher of Yakima County Superior Court would hear those separately as part of the case in chief. All of the subbasins—there were 31 subbasins—were referred to the referee as well as the non-Indian reserved rights of the United States. So I had to set up and conduct hearings for the subbasins. Now, I only did about nine, as I recall, until I retired. Each subbasin, depending on its complexity, might take from three days to four or five weeks of court time to hear. I would try to set up the schedule of appearances on behalf of the claimants to allow them adequate time to present their case during the hearing. So that was one phase of it.

I would convene the court, and it was just like a regular trial in any courtroom. The referee is like a traffic cop who says when the attorneys can make their presentation, when they can call their claimant to the stand, and when the claimant can be cross-examined by other attorneys. I would also ask questions of the claimant or witnesses as I saw fit.

The second phase would be the actual hearing itself. On a typical day, the court would start at 9 o'clock. I would convene the court, and it was just like a regular trial in any courtroom. The referee is like a traffic cop who says when the attorneys can make their presentation, when they can call their claimant to the stand, and when the claimant can be cross-examined by other attorneys. I would also ask questions of the claimant or witnesses as I saw fit. Now, after the hearings were over, generally I provided a briefing schedule where claimants and their attorneys could provide written briefs to the referee for the referee's consideration prior to completion of the referee's report on each subbasin. After the briefing period was over, I would start writing the referee's report, which might take anywhere from, oh boy, three months to a year to complete. Now, granted, I wasn't writing during that entire period. I was probably holding other hearings during the time that I was completing the referee's report for the previous hearing. It was a kind of leapfrog existence that I was playing. Our intent was to always try to keep the pipeline full so that there wasn't any down time, not only on my part, but also for the adjudication staff who were out of Ecology headquarters.

ER: So, your position was as adjudication referee with the Department of Ecology. And when you held court, were you actually in the courtroom?

BS: Yes, the position was adjudication referee for the Department of Ecology, and, yes, I sat in the courtroom. In the Acquavella case, I used the Yakima County Superior Court courtroom. I sat up at the bench, I wore a black robe, I had a gavel in my hand, and I had just about the same power as the Superior Court judge while I

was sitting on the bench. It's kind of like being a pinch hitter for the judge, in baseball terms.

ER: Did you ever wish you had had a law degree to do this? I mean, David Akana was an attorney, and you were not, correct?

BS: Yeah, Dave was an attorney, and he was also an engineer. In a sense, a law degree would have helped, but what was more important was experience in the water resource area. In addition to my education as a geologist, I also had the opportunity to take a course or two at the University of Washington Law School, and I did take a couple courses at the National Judicial College—a course in the conduct of hearings and also on the taking of evidence, which helped a lot.

ER: What was the funniest thing that ever happened when you were doing this kind of work?

BS: There were a lot of humorous things that happened, especially during court, because people are interesting. They're very unpredictable. I can recall one instance where one of the claimants on the stand was talking about her experience in using water, and she began to deviate from the topic. She began describing the time that she was out in her yard and saw some bears. I then asked the attorney for the department, Kerry O'Hara, if she would care to inquire—pose a question related to the case—and Kerry responded something like, I'd rather hear about the bears. That cracked up the courtroom, but there are a lot of little anecdotes, a lot of humor that went on like that—some private, some public. Another time, an elderly female claimant kept calling the department attorney, Peter Anderson, "honey" while she was on the stand. That was embarrassing to Peter, but humorous to everyone else.

ER: So generally, would there be a sense of calm instead of anxiety from the people who came in? I would imagine that people would be highly upset if they thought their water rights might be at risk.

BS: A few people were upset. There were a lot of them who were apprehensive. Appearing in court is not an easy process for a lot of people, because most people haven't done that in their lifetime. I tried as best I could to put them at ease when they took the stand. I'd try to get them to tell their story in their own words and not let the atmosphere intimidate them. When they were represented by an attorney, I figured that's the attorney's job, let them do it, and so I didn't interject myself into that process.

ER: When you were sitting on the judge's bench, you were employed by Ecology, and you had attorneys from the Attorney General's Office who were associated with Ecology, arguing on behalf of the state, and then you had the claimants. Did the claimants feel like the deck would be stacked?

BS: Some of them did. You look at the title of the case, and it says Ecology versus all these people, but when you come right down to it, it really wasn't that way. That's just cosmetic. The Department basically was neutral during the whole process. One of the things the Department did was to provide evidence, which claimants could rely upon. The evidence consisted of all of the permits, certificates that were on file at Ecology, all of the claims filed under the Claims Registration Act, plus an investigation report where Ecology would go out

onto the claimant's property and investigate and determine what use they felt the claimant was making of the water. Ecology would indicate how many acres they felt the claimant was irrigating, and prepare a written report well in advance of the hearing. If the claimant disagreed with the Ecology report, when they got on the stand, they could say that Ecology's report was wrong, instead of 30 acres it was 60 acres, for example. However, most claimants agreed with Ecology's reports. They were pretty accurate.

ER: Who did the job of educating the claimants about the process? I saw some brochures from the file that were quite good.

BS: Yeah, that was done throughout the entire process. Actually, shortly after the adjudication was filed in 1977, there were a series of meetings, informational meetings that were held throughout the basin, which were done by Ecology staff. They tried to explain the entire process of what an adjudication was all about—that it was a judicial process, but yet it resulted in the determination of water rights in the basin, and it was actually a process of which some good was going to result. That is, there would be certainty regarding people's water rights. They'd know what they had. In addition to those meetings, there were brochures prepared like you just mentioned, which were distributed throughout the area. People would come into the Central Regional Office and make inquiry. The regional office people were prepared to advise individuals as to what was going on. In addition, prior to the hearings, I would schedule a pre-hearing conference—an informal get-together, so to speak, of all the claimants in that particular subbasin. I would explain to them what the adjudication process was all about, what I expected from them as claimants at the hearing, how to prepare their case, and what to stress when they made their presentations. I think everyone bent over backward trying to assist the claimants in their presentation without trying to be an advocate for them.

ER: Could they do it pro se, representing themselves?

BS: Yeah. Most of them did it pro se. Many of them hired attorneys, but a lot of them got up there pro se. What would generally happen was, I'd call them to the stand, and I'd ask them to explain, in their own words, the substance of their claim. I would try to help them through the process in asking questions that would lead them to identifying the acreage and the amount of water they were using, and to show any historical documents or other documentation they might have with respect to the use of water on their land. Generally, the attorney for the state was also trying to be helpful to the claimants, especially when they appeared pro se.

There's an old saying, "In the Eastern United States, we take water for granted. In the West, we take water from each other."

ER: Were the key conflicts irrigation versus fishing, or something else?

BS: The key conflicts on the main stem are somewhat irrigation versus fish, but the conflicts on all these tributaries are irrigation versus irrigation. There's an old saying, "In the Eastern United States, we take water for granted. In the West, we take water from each other."

ER: So, once the decisions are made, do they stand forever?

BS: They usually do. Once a decision is finalized, in my report to the court, that is a recommendation. It is subject to change, and claimants can take exception to parts or all of the referee's report. They can say, well, the referee is haywire because he didn't consider this or that. So, they can request, of the court, that their claim be reheard and if the judge feels that the referee may have erred, or the claimant didn't get an adequate opportunity to present their claim like they should have, the court can remand that claim back to the referee for rehearing on certain issues. Generally, the focus is narrowed on any remands; so remanded hearings are a lot less time consuming than the original hearing.

ER: I'm curious about this matter of the decisions, and if they can ever be changed. You said that things can be remanded to you, but what if they want to appeal further? Does it stop with you as the referee, or did it ever go to court?

BS: No, it always goes to the court. The court has the last word on this, and when I complete my report, it is to the court, and it's my recommendations. Now the court, like I said, can hear any exceptions to this and remand portions back if the judge feels that the claimant didn't get a fair shake or there was a problem. Sometimes a claimant doesn't make an appearance because there's a death in the family or something, and if the court feels that's a legitimate reason, then the judge will remand that finding and I, as referee, will have to hold another hearing for that one claimant, but I won't have to include everybody in my remand. I then have to prepare another report for the court on the remand hearing. The court hears that and determines if what I've done is correct and that there are no more exceptions. Then the court issues the final conditional order, and that's it. All claimants are bound by the decisions that were made in that referee's report.

ER: Were there people who wanted the whole process to go faster and people who wanted it to go slower?

BS: There are always people who want it to go faster, and I'm one of them. It is a slow, laborious process. There are probably better ways to accomplish it, but not within the existing statutes. So, without going back and making statutory amendments, we really can't do a heck of a lot, but there are faster ways to do this, and recommendations have been made, I believe, to the Legislature regarding this, but the Legislature hasn't done anything yet.

ER: What kinds of pressures were brought to bear on your office?

BS: On my office, none really, and I think you're kind of implying there may have been political pressures?

ER: Right.

BS: None. Everybody left me alone, and I when say everybody, I mean everybody. I mean I didn't get any pressure from any legislator; I didn't get any pressure from Ecology. Nobody in Ecology and on up the line told me how to do things in any specific instance. As a matter of fact, it would have been difficult for them to do so because I was really part of the court process, working for the court. If someone in Ecology had said, do such and such to this claimant, I would have had to report that to the court in all good conscience. There was no way they could do that.

ER: I'm imagining you in an office all by yourself with mounds of paper. How did you get an actual report written? Did you sit at an old typewriter? Did you have a Dictaphone? How did things get produced?

BS: I had an office by myself, which I desperately needed, and I had a legal secretary. Initially, I was in the Central Regional Office in Yakima, but quite frankly that really didn't look good because of the perception of a close association between the referee and the actual Ecology people. So, my office was actually relocated separately from the Regional Office. When I sat down to write a referee's report, I would have to go to the court, and I would check out all of the evidence that was presented, all of the exhibits. I would then get the transcript of the testimony from the court reporter. These transcripts were anywhere from 300 to 2,000 pages long, and I would sit in my office—well, not really sit, because I would stand up for a lot of the time—but I would generally outline what I intended to say, dictating everything into a portable Dictaphone. Then my secretary would transcribe that. During my tenure as referee, I had two legal secretaries, Lois Keys and Judy Weston, both top notch assistants. When I'm dictating, I also include punctuation. Anytime anyone takes my dictation, they love it because they don't have to think very much. All they have to do is type it out, and I very rarely make any changes to my dictation. I don't know why, but I just have a knack for it, I guess. Anyway, I would paste things up on the wall. I had a blackboard in there, and I had diagrams, circles, and arrows and neat stuff like that, and I would crank out a referee's report that way.

ER: I think that good dictating is a lost art these days.

BS: Yeah, I'd be lost today. I have a computer at home, but I'm not very good at it. I never did learn to type, so I would have a distinct problem if I had to do my own typing.

ER: What aspects of the Yakima Adjudication have implications for other water resource allocations, or is it just the process is the process?

BS: No, the process is the process. I think, not so much for allocations, but I think that it points out some shortcomings of the adjudication process, which a lot of us were aware of a long time before Acquavella came along, but we couldn't do a heck of a lot about it because of the fact that we're stuck with the statutes as they exist today. In dealing with my statewide adjudications early on, all of the state's evidence was put on orally. The adjudication staff would get up, get on the stand, and they would give their oral outline of what they found on the property. I instituted a written report, so that report was not only available to the court, but it was available to the claimants well in advance of the hearings. That way, they could take exception to it, or modify their testimony to fit the report with Ecology. Prior to that time, the testimony from Ecology was oral, as I said. That meant the hearing was the first time the claimants heard it. So, they really didn't have time to react to it. I felt that was unfair to claimants, which is why I wanted a written report, and it stayed that way. We've got written reports now.

ER: Are there any aspects of the adjudication process that have implications for other resource conflict management decisions?

BS: I think there are some statutory changes that need to be made. I think that the department could conduct mini-adjudications, small adjudications that just involved a few parties. It wouldn't have to go out and take in a whole drainage or whole watershed if they

only wanted to resolve a conflict between maybe a half a dozen parties. There's no real provision for that in the statute today, but maybe that would be an approach that could be used.

ER: How can modern information technology help the speed and accuracy of future adjudications?

BS: I suppose that mapping, maybe the GIS mapping system, could help. That's always been a problem in delineating, say, irrigated acreages, for example. I also suppose, if everyone had a computer terminal, a lot of information that Ecology collects on claimants could be transmitted electronically, directly to the claimants for their consideration, and maybe for any correction they care to make. There are probably a lot of things that could be done along those lines. I hadn't given it all that much thought, not being a computer guru myself.

ER: I gather that you're still in close contact with the people working on adjudication. Is there something about the work itself that continues to draw your interest, and, if so, what?

BS: Let's face it, not only the adjudication, but water resources in general have been a big part of my life. Even after I retired from Ecology in '89, I went to work under contract for nine more years for Ecology, believe it or not, writing some more referee's reports. I finally retired for the third time in 1997. Then I turned around and volunteered for the Thurston County Water Conservancy Board. I've served on that board for four years. I don't keep in close contact with the folks in Yakima, but I generally do visit them now and then, and I try to keep in contact with some of the other folks who have retired and some that are not so retired. I contact Charlie Roe once in a while and say hi to him. We still communicate.

ER: You implied some frustration with the process of adjudication in regard to how the statutes were written. I wonder if you can give a sense what you'd like to see done differently.

BS: The Department, back in the 1970s, promulgated a lot of basin plans pursuant to the Water Resources Act of 1971. The basin plans, to a large degree, were to guide the department in its allocation policies, allocation of future water rights. In a sense, they're a good idea, but I've always felt that they were a little bit premature because before one institutes any allocation policies, one should know what the resource is, and what the demands on that resource are before you start developing policies as to its allocation. The adjudication of existing water rights is necessary before basins plans are promulgated. My thoughts and comments on this never went very far because the adjudication process is a long, cumbersome process. I recognize that the promulgation of basin plans can be a quicker process. This is in concert with promises made to the Legislature that we're going to do something about our allocation policies, but I firmly feel that it's important to determine what the existing rights are out there before you get into any allocation mode.

A Layman Practices Water Law

An interview with Sam Bailey
September 10, 2004


Bailey

Position held at time of interview:

Retired, Washington State Department of Ecology, 1972-2004

Formerly, environmental specialist, Water Resources Program, Washington State Department of Ecology, 2001-2004

Education:

- Centralia Community College, 1965-1966

Emily Ray: I understand that prior to working on adjudications, you worked in Water Resources. What sort of work did you do in that area?

Sam Bailey: In 1974, I got a promotion to an Environmental Tech Three position in the Central region, and I moved my family, lock, stock and barrel to Yakima, to the Central Regional Office. I was only over there a couple of years, and I learned water rights. We were called Resource Management, and our organization wasn't programmatic. We actually had three program functions that we did. We had water rights, shoreline permit review and flood-control zone permits issuance.

I was in adjudications from 1980 to 1984, and I took part in a number of small adjudications, which were really quite fun to do because they only lasted just a few years, and you could actually see most of them from start to finish. We did Deadman Creek and Little Klickitat River and Duck Lake, and Antoine Creek, and Cow Creek, and a number of others. I mean, they weren't all started and finished in that four years, but I worked on all of those, and I also served some summonses in the Yakima Adjudication.

ER: Ecology has adjudicated surface water rights on stream segments throughout the state. What is the role of the headquarters staff in these adjudications?

SB: Basically, when a decision is made to adjudicate a basin, headquarters staff does all the title research, which is important in determining who should be defendants in the adjudication. For example, there were maybe 350 claimants in the Deadman Creek Adjudication, maybe 450 in the Little Klickitat adjudication, and there were over 5,000 named defendants, including major irrigation districts, in the Yakima adjudication. There was a lot of title research work that needed to be done, and back then it was all done by hand. All the records in the courthouse were all paper records, not electronic. You had to look through their books, and there are a number of legal documents that have to be prepared to file the case. Headquarters staff did most of the preparation of those legal documents, and the attorneys filed them.

ER: So, you had kind of a boilerplate that you could follow?

SB: Yeah, it's pretty well set. There's what's called the Statement of Facts that has to be prepared, there's *lis pendens*, a summons, and all kinds of documents. I can't remember all the required pieces, but there are probably four or five different documents that have to be prepared, and are all filed at once when you start a case. Headquarters would then do mapping, investigations of the nature of the drainage basin and stream flows. If need be, they set up stream and ditch gauging—not really gauging stations—but gauging points where you come in with different stream flow measurement equipment to measure different flows during various times of the year. Most of this is set up fairly early in the adjudication. Much of it has to be done before the paperwork is filed, like the characterization of the basin and research of all of our records. Since the Department of Ecology is the keeper of the water right records, we research our records for water rights. Then, from the water rights information that we're researching, we identify lands that are covered under either claims or certificate of water rights, go to the courthouse, find out who all has interest in that land, name them as defendants, and then after filing the case in court, serve them all summonses to come forward in the court if they want to defend their water rights. If they don't come forward, their water rights will be extinguished.

ER: All this filing would take place in the county where the stream lies, I take it, not in Thurston County?

SB: That's correct. For example, in the Yakima adjudication, there are four counties involved, and so it can be filed in one county. In this case it was filed in Yakima County; it also covers a little bit of Klickitat County, major portions of Kittitas and Benton, but that case was filed in Yakima County. Also, there are all kinds of requirements for publishing notices of the adjudication in newspapers. I can't remember the specific details, but, for example, you have to publish a legal notice for six weeks in all newspapers in the area. Then, we personally serve summonses to everybody named as a defendant. So the publications, for the most part, were to bring people out of the woodwork whom we were not necessarily aware of.

ER: I take it that the service of summons was done by Ecology staff, not the sheriff?

SB: A knock on the door.

ER: That sounds kind of scary.

SB: Yeah, and it could be. Under certain circumstances service can be by registered mail or in person by paid consultants. The sheriff is contacted to attempt service to those we can't locate. But the first attempt is usually personal service by Ecology staff. Most of the time it's not that bad. Usually, in a small adjudication, people don't really know what's going on; so they haven't had too much time to get their hackles up. When you're going around, serving summonses, you need to take the time to explain to them what the process is, explain that they can hire an attorney, but they don't need to have an attorney at the adjudication; they can represent themselves. If you talk to them a little bit about what their water uses are and give them some ideas of what they might be facing, that takes away a lot of their concerns. But there have been some interesting instances. I remember trying to hand a guy a summons and having him whack on the end of it with a butcher knife as I was holding it in my hand. He was shredding the end of it, commenting about government coming out and suing. But, by the end of that particular interview, we were inside having

coffee. The guy had discovered he didn't need to do anything, so he wasn't mad anymore. He was just mad to begin with.

ER: Did you go in pairs to do that?

SB: Back then, yes. Things changed over a period of time, and I think there were some changes in the law, if I'm not mistaken, that allowed for summons by registered mail with return receipt. Sometimes you just can't find the people. Some of our water right records are pretty old, and sometimes you just cannot find the people where you're supposed to find them. Maybe they no longer have an interest in the property, in which case you turn them over to the sheriff. We used to go to power companies and try to get them to identify if somebody was on their power grid, and if they were, what their address was so we could go serve them. We used to do all sorts of things. We spent a lot of time in the counties, and a lot of time in the field, and that was just getting it started. Part of the summons package is a blank Statement of Claim that people can fill out, and then they file that with the court to basically say, OK, I need to be a part of this; I'm claiming these water rights. Once those Statements of Claim are filed with the court, copies of them are turned over to the Department of Ecology, and we map them all out, prepare files on them, do field work—actually going out and inspecting water uses, looking for not only current uses, but also signs of historic use.

When surface water is involved, basically you either have to have a certificate of water right—having gone through the permitting system in Washington state—or you have to have a use that predates 1917, before permits were required. Of course, we had the Claims Registration Program from 1969 to 1974. So a lot of people who supposedly had these pre-1917 surface water rights, had been required to register claims, and if they failed to register a claim at that time, that would be a piece of missing proof that would be fatal to their assertion of the water right in an adjudication.

I did a little bit of that work in '74 at the Central Regional Office, helping people register their claims. I can remember on the last day of the claims registration period, which was June 30, 1974, everybody, including the regional manager at Central Regional Office, worked that Saturday from 8 to 5, helping people fill out their claims and getting them filed in time. Yakima's Regional Office, at that time, was at the Masonic Temple. There were lines around the block, like people waiting to go into a popular movie, but this was to get help registering their water right claims. I had another incident there where I was trying—we did a lot of stuff we probably shouldn't have done, like we'd fill them out by asking them questions to help them out—but this one time I was asking a nice old lady a bunch of questions maybe a little too quickly, trying to help people as fast as I could, and she broke down in tears and went running out of the office because the process overwhelmed her. She ended up coming back, and we got her claim to that domestic well registered, it was no big problem, but we started asking her questions about the legal description of the property and where her property is located, what section. Well, a lot of people don't know that; so, it can get pretty stressful, and when you're helping dozens, if not hundreds of people in a panic situation on the last day, things can get a little heated.

ER: Do you feel you've covered your normal day, the fact you might have been doing some mapping or some title research, or what were some of your other tasks?

SB: Actually there are phases. Initially there's the filing where you do the title research and you prepare some initial maps, and you file the documents, and then you have fieldwork for serving summons. Then, when the claims come in, you actually go out and investigate them. I guess that pretty much covers it, but then there are reports of your investigations to prepare. So, it's kind of hard to say what a typical day is because there are different things at different phases of an adjudication. So, if we were out there concentrating on fieldwork, there were times when we were traveling three weeks a month from Olympia to Spokane, like when we were investigating Deadman Creek claims in the summertime. We'd also work almost from daylight until dark sometimes because, when we served summonses, we had to be there when people were home. Most days, we'd take time off in the middle of the day because we'd be out there at 6 in the morning and not get back in until after 9 at night.

ER: Well, here's kind of a simple-minded question: With so much work that had to be done at the regional location, why wasn't this a regionalized effort?

SB: I think that's a good question, and I think the answer is, expertise. You gather a certain amount of expertise for the folks who are doing the adjudication, and who could afford a whole team in each one of the regional offices? Actually, when I was working in the regions, I traveled almost as much anyway. It's just that you don't travel quite so far. For example, when you work on Yakima, you're working up in Okanogan County, but you don't travel there every day, you travel up there for the week. When we went to Spokane, we'd fly, and then we'd use rental vehicles. So, if you have the expertise, you could dedicate the staff, because once you start an adjudication, you've got a commitment. Obviously, as in the Yakima Adjudication, it can be a significant commitment when you take on one that large.

Maybe the thing to do in the future would be to see about contracting certain things out, like maybe the service of summonses, where you could contract with local people. Or, you could actually do some certification programs for water right inspectors, and you could contract with folks to do fieldwork on adjudications. Or, if the law was changed, you could require the claimants to provide the information, and all we'd have to do is verify it.

It's hard to say where adjudications will go in Washington state. It may be too late for a comprehensive adjudication of all the water rights in the state just because of time. There's nobody really around now who can testify to water use before 1917, very few people. Direct testimony on those old historic water uses is some of the most valuable information for the referee.

It may be too late for a comprehensive adjudication of all the water rights in the state just because of time. There's nobody really around now who can testify to water use before 1917, very few people. Direct testimony on those old historic water uses is some of the most valuable information for the referee.

ER: So, when you went before the referee, did you have to show up and present what you'd worked on, or could those papers just be presented?

SB: Things changed over a period of time. When I first began working with adjudications, the field inspector, the one who went out there and looked over the claimed water uses,

testified before the referee the first two hours of every hearing day. In the Deadman Creek adjudication, I think I testified for like six weeks, something on that order. Basically, you'd sit up there and you'd give your impressions of what you observed. Then the claimant could cross-examine you if he wanted to. When the claimant got up and presented their testimony, you'd sit down and provide technical assistance to the attorney representing the Department of Ecology. For the smaller adjudications, I found that the vast majority of the claimants represented themselves. In the Yakima adjudication, that might have been true for a while, but as its progressed, a good many of those claimants, maybe as many as half of them, had attorneys. And so, initially, during the hearings before the referee, and even the hearings before court, Ecology staff would provide technical assistance to the assistant attorney general as well as be there to enter a report of their inspection of the claimed right and/or give direct testimony as to their observations. I actually liked it better when we did our own notes and we gave direct testimony. It was kind of fun. And since 1996, in the Yakima adjudication, we got permission from Judge Stauffacher to represent Ecology pro se, without legal representation, before the referee, so we didn't have to go in with an assistant attorney general. This was a cost-saving initiative. So, the last years I worked for Ecology, I did a significant portion of representing Ecology before the referee, calling witnesses and cross-examining witnesses—all that kind of stuff.

ER: Did you ever wish you'd gone to law school for this kind of thing?

SB: Well, I wish I'd gone to school, period, but there's really no trick to it. I mean, it's about knowing your business, No. 1, knowing water rights, and all the documents needed regarding what constitutes proof of a water right. A lot of people think they have water rights, and they really don't. Using water doesn't mean you have a water right. If you used it before 1917, it would, but then only if you registered a claim between 1969 and 1974. But it's important to learn water rights issues. There are adjudications going on in almost all of the Western states. Idaho is adjudicating all of the waters of the Snake River, which is most of the geographic area of the state. Other ones have been further along in the battle than we have, but Utah, California and Nevada, Arizona and Texas, and New Mexico—all of them either have adjudications that they continue to deal with, or they have some that are not complete. Once an adjudication is finished, it doesn't necessarily end the issues going on in a particular basin. We have lots of areas throughout Washington state that were adjudicated in the past, and some of them need to be re-adjudicated because of poor record keeping, property transfers, relinquishment of water rights and all kinds of other issues.

ER: That's an interesting idea, tying property transfers to adjudications.

SB: Some states have systems where, after it's adjudicated, the nature of that particular confirmed water right is monitored as the property sells, as it is divided up, as the water use changes. Some authorizations are needed. I mean, if someone wanted to change a water right from irrigation to domestic water supply, they might be able to do that, but they've got to go through an approval process with the state called a Change Application. If it's been granted, then you can make the change. Western water law varies from state to state, but it's all pretty much the same.

ER: What if someone wanted to change to a lower priority of rights?

SB: There are many elements to a water right, but the only way you could do that, potentially, would be to prove that water was used earlier than what is currently stated, and

if it's after 1917 and it's surface water, the priority date is the date that the application for water right is filed with the state. If it's prior to 1917, the priority date could be the date of the homestead patent.

ER: When I said priority, I wasn't thinking of priority of date, but priority of use.

SB: That's been one of the major policy issues that the Legislature and agency management are dealing with today, but as far as water rights are concerned, the priority is when the water was first used, not the use that the water is put to. There is, in water right law, the ability of a municipality to condemn other water rights for municipal use. I never had dealt with that, but there are some ways to condemn existing water rights. Say a basin is fully appropriated, and there is an overwhelming public need for the water. Then, potentially, a municipal government can go in and condemn their right, and take it over for municipal uses, but not without paying just compensation.

Say a basin is fully appropriated, and there is an overwhelming public need for the water. Then, potentially, a municipal government can go in and condemn their right, and take it over for municipal uses, but not without paying just compensation.

ER: What was different about the Acquavella adjudication as compared to the other adjudications you dealt with?

SB: Just its size. I mean it is exponentially larger than any of the other adjudications that I worked on. It involved major irrigation districts and municipalities, primarily the City of Yakima. There were a lot of legal issues fought right away over whether it was a general adjudication, and thereby the United States could legally be made a party. Whether or not we had to serve the tens of thousands of individuals who received water from, like, the City of Yakima or the Roza Irrigation District or the Sunnyside Division Irrigation Districts, or, I mean, there's, like, 30 maybe 35 major claimants in the adjudication.

In the Yakima Basin, major claimants provide water to tens of thousand of their patrons. If they all individually had to file claims, the cost of the adjudication would increase exponentially. This would result in thousands of individual rights within city and irrigation district boundaries. So, because of its size, there were some changes made in the law. No. 1, the $2 fee for the court clerk charging to file a Statement of Claim in the adjudication by a defendant or by a claimant was raised to $25. I believe this change was sought by the court because of the substantial cost to the court for the Yakima adjudication. As a result of the change, a claimant was charged a filing fee of $25 for each claim to a vested surface water right claimed. The law was also changed, allowing discretion of the judge to hear certain claims directly rather than first being heard by a referee in an adjudication that had a thousand claimants or more.

So, they divided the Yakima adjudication into several pathways—four of them actually, two dealing with federal rights—the federal reserved rights of the Yakama Nation, and then the federal reserved rights of the other United States entities, like the Forest Service, the Bureau of Reclamation and the military. Then there was a pathway for the major claimants like the City of Yakima and the major irrigation districts. Then there was what they called the subbasin pathway, which was for all of the other entities to assert their claims, including the

United States. The United States can have reserved water rights. There are certain types of water rights that the United States have to apply for in the states just like any other person. So, a lot of the work dealing with the major claimants involved researching documents, reviewing the volumes of documents that were filed by the major claimants and analyzing those and providing comments to the assistant attorneys general, as well as providing technical assistance to the assistant attorneys general during the trials before the judge. It's like a partnership, at least from my experience.

ER: What were the major conflicts involved in the adjudication?

SB: When you talk about the major conflicts and the major issues, the first one is to realize you're not going to have an adjudication like the Yakima adjudication if there's plenty of water available for everybody in the basin. You've got water problems before an adjudication is started, and you also have other things that were going on later during the adjudication, like the Yakima Enhancement Project, which was a 1995 water infrastructure project between the Department of Ecology and the Bureau of Reclamation to improve water supply for irrigation and increase flows for fish.

Eastern Washington circle irrigation.

A lot of the issues, in terms of water rights, dealt with standards of proof. Another one of the initial issues was determination by the referee that the relinquishment provisions of the water right claims registration—five continuous years of nonuse without good cause—did not apply, as the adjudication was a legal action as defined by those provisions and, therefore, good cause for nonuse. This issue was dealt with by the state Supreme Court during an unrelated case. The Supreme Court ruled that legal action constituted sufficient cause for nonuse, only if the legal action prevented use of the water. The Yakima adjudication court consequently changed its position, requiring a relinquishment analysis of any periods of nonuse. Statutory relinquishment became effective in 1967. So if a person claiming a vested right used the claimed water from say 1967 to 1980, and then they didn't

use it again until 1990, they may have lost that right. Initially, in the preface report for the referee, it was determined that, yes, the Yakima adjudication did toll the relinquishment clock. There are a number of justifications for nonuse, such as service in the military. In other words, if you're doing military duty in Iraq, it's pretty difficult for you to use your water to, for example, irrigate your fields. If that's the case, they're not going to penalize you for serving your country. They're not going to take your water right away from you. Drought can also toll the relinquishment clock, and we have a history of declared droughts in the Central and Eastern region in the state. The operation of legal proceedings can also toll the relinquishment clock. But, according to the Supreme Court, only if those legal proceedings prevent you from using water. So, it was determined that the Yakima adjudication does not prevent people from using water, therefore the adjudication does not constitute sufficient cause for nonuse. Halfway through the hearings, relinquishment became an issue that had to be considered.

There were issues about determining priority dates. One of the interesting things in water rights, surface water particularly, is that after 1917, in order to develop a water right, you're supposed to have a permit. But there's an exception to that: If the land you're on was severed from federal ownership prior to 1917—say 1870, and you've got a federal patent for that property prior to 1917, and you put the water in use within a reasonable period of time after the water right permit system was implemented in 1917—then you could still have a water right, but the priority date relates all the way back to the patent date. The Washington state Supreme Court determined in another adjudication that a reasonable period of time is 15 years. So, they came up with this 1932 date. In other words, if the land was patented before 1917 and the water was put to use before the end of 1932, then you have a valid water right with a priority date that related back to the date of patent of the property, which could have been in the late 1800s. So, there are a lot of people who maybe had uses that didn't get started until 1930 but have 1870 priority dates.

ER: I'm seeing that there might be some implications for the salmon recovery effort to affect, not necessarily priority of rights, but the amount of water that anybody can use because there has to be enough stream flow if salmon are to recover in huge numbers. Is that a concern?

SB: There's no law that says you have to put in the most efficient delivery system. For example, if you've been using water for 50 years and you've been using a wheel line irrigation system, which is relatively inefficient, it's pretty tough for Ecology to go in there and mandate a drip system or a sprinkler system that uses a third of the water you're using now, or maybe even only 10 percent of that water. The way you do it in salmon recovery is to put up a big pile of money and make a deal to pay the person to improve their system, then a portion of that water is turned over to the state. Either that, or you buy their water right, if they've

The way you do it in salmon recovery is to put up a big pile of money and make a deal to pay the person to improve their system, then a portion of that water is turned over to the state. Either that, or you buy their water right, if they've got a valid water right, and you convert it into a trust water right that can be regulated and stays in the stream.

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The Legislature passed a number of amendments to water law regarding relinquishment. One legislative change allowed a water right holder to temporarily transfer their water into a trust when they're not using it. As long as you transfer your right into a trust, relinquishment for nonuse would not occur. So, say you don't want to irrigate now for however long, maybe 20 years, because of circumstances or maybe settlement of the estate or another issue. This way, you can transfer the water into a trust for those years, and you've got time to think about it without losing your water right. You've got time to think about what you're going to do, who you're going to sell it to and what's the best price you're going to get for it. In Washington, comparatively speaking, water rights are cheap. The process of getting a water right, even a large one, is only maybe a few thousand dollars in fees, whereas purchasing water rights in Oregon is expensive. When they were buying back water rights to get water in the streams, they were paying $8,000 an acre to purchase a water right. In Eastern Washington, if it takes 4 acre-feet to irrigate each acre to purchase 100 acres, you've got 400 acre-feet at $8,000 an acre-foot to buy that water right, and that's a big expense. Permitting fees for hundred acres of irrigation would only be a few hundred dollars. The biggest expense is construction of the system to put the water to use, but then when they decide they're no longer going to develop that property, and they want to sell that water back to the state, we pay a premium price for it. I've looked at water rights and Western water law as being a big giveaway to individuals. A lot of them, if they play it right, sell water to big developers when land uses change from agricultural to development land uses. All of a sudden, people pay a lot of money for water, a lot more than the agricultural community can pay for it. It aggravates me a little bit how easy it was, for a long period of time, for people to get water rights. Now to get that water back in the streams and balance things out—which should have been the evaluation we were doing to begin with—is costing the federal government and people of the state a lot of money.

ER: Well, I imagine, initially, the idea was, get this area settled and to make it easy by giving them land and water and all that as cheap as possible. Then, at some point, it starts to snowball and needs to be corrected, right?

SB: Well, when you look at the history of water laws in the U.S., you'll see that even the Bureau of Reclamation, when they first came in, provided all this bureau water, which was supposed to be for the family farms, 40-acre plots. Well, that's gone up to I believe a thousand acres. Now you have corporations that are benefiting from basically subsidized water developments by the federal government and by the state, and as corporations, developers and municipalities buy out these different plots, the laws had to be changed. For example, if it were illegal for somebody to have over 40 acres of irrigated land that was supplied by a federal reclamation project, most of the Central Valley in California would be illegally using water. It's an extremely political issue. Although, originally, it was a great giveaway to encourage settlement of the West.

ER: How was funding for the adjudication obtained?

SB: I'm not exactly sure. The one thing I do know is that the Yakima Adjudication, from 1977 to the present, has been funded by the Legislature at an average rate of $1 million a year. Part of that funding is to pay for a court commissioner, a court clerk and for copying.

Every time one of these 300- or 500-page reports goes out, there are hundreds of copies given to people. There is a monthly notice that has to be sent out to keep everybody apprised of all kinds of topics: What's going to be heard before whom, what issues are involved, what property transactions have occurred, who's been brought and substituted for different claims, or who has joined to different claims. Ecology keeps track of a lot of that. We built a database for keeping track of claims and claimants. That's how mailing lists and various reports are produced, from that database. Ecology staff also maintain and update the adjudication database.

In the Yakima adjudication there is also a mediation element. It's the first time we used mediation in an adjudication. That came about because of the Supreme Court decision on relinquishment, saying that you still have to prove, in the Yakima adjudication, that you haven't relinquished your water right.

ER: Do you think the mediation techniques will be used in litigations again?

SB: Mediation should be in the adjudication toolbox. Future adjudications will probably be even more complicated than the Yakima because they would likely include groundwater, where the Yakima Adjudication only included surface water. If they did the Nooksack adjudication, for example, you might have 25,000 claimants instead of several thousand. In Idaho, the Snake River adjudication included close to 100,000 claimants.

There's a lot of room for integrating information technology into an adjudication process, and a lot of states have already done that. Satellite photography and GIS, Geographic Information System, mapping would be very useful when interviewing claimants. GPS, Global Positioning System, usage would be useful during field investigation and water use mapping. It makes it pretty difficult for somebody who's claiming they irrigate 55 acres when you have an aerial photograph of their property and can ask, "Is this your property," show them a line, and ask, "Is this the area that you irrigate," and they say, yeah. Then you show them that the GIS System calculates that's 42 acres, not 55. In the past, field investigators have used older techniques for determining areas that were irrigated, including digitizers. Ecology staff now uses GIS to map water uses. Still, adjudications really haven't come fully into the information age yet, and one of the reasons is the expense.

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ER: What was your most interesting experience in connection with the Acquavella adjudication?

SB: One of my most interesting experiences was the very first time I represented Ecology without an attorney. It was really pretty funny. I had maybe six claimants heard before the referee. The court had not made any rulings on whether we could do it or not. I mean, the

AGs just informed the court that we were going to do this. The hearing was held in Kittitas County, which is where I represented Ecology on these six claims on this one little subbasin, and the attorneys for the other side weren't going to give on anything. In other words, they would offer the court a copy of the exhibits they were entering, but they wouldn't have the courtesy to give me a copy like they would do for an assistant attorney general; so I had to ask for all that stuff. Well, at one moment, I stood up and said, "Your Honor, Ecology would like to have a copy of that exhibit for our records," and as soon as I said that, the lawyer came over with a stack of stuff and dropped on my desk—a huge stack for me to go through—and it was pretty funny.

Our dealings with other attorneys when representing Ecology before the referee without an assistant attorney general could be interesting. I remember the attorneys for the claimants made a motion with the court called something like, the practice of law by laymen. At that time the referee said, well, we're going to allow Ecology to continue to do this until we have some word from the judge. As it turned out, the judge actually allowed us to do it. He said, whether it's the limited practice of law by laymen or not the practice of law, Ecology staff have specific water right expertise that is very valuable to these proceedings. I think that was one of the fun things. Actually, I really enjoyed the last eight years I worked for Ecology, and that was one of the reasons. You got out there and do pretty much everything for yourself, rather than having to feed an attorney information. I did many of the subbasins, more than anybody else. I took five of the 31 subbasins through initial evidentiary hearing, and I took a number of them through first and second supplemental hearings before the referee. I testified in court a number of times before the judge. That was an aspect I really liked. If you're not intimidated by people, and you can speak your mind when people are trying to rattle you, then you'd be just fine.

Chapter Nine - Environment 2010

Armed with a new director and a desire to strengthen its mission to protect the environment, the Department of Ecology, in 1989, embarked on the monumental task of shifting paradigms. Instead of limiting its scope of authority to reacting to environmental issues and violations, the agency, led by then-Director Christine Gregoire, turned its vision 20 years ahead. The leading question was, "What do we want the condition of Washington's environment to be by the year 2010?" The inquiry was as simple and direct as the response was complex and multivoiced. For answers, Ecology worked collaboratively with several external agencies and organizations, seeking the input of stakeholders that ran the gamut from private citizens to businesses and federal agencies. Their responses were, as one interviewee put it, "a gold mine," resulting in renewed environmental priorities that would serve to foster new legislation and, ultimately, mark the agency's path toward 2010 and beyond.

Chapter Advisor: Dee Ragsdale, Performance and Recognition Supervisor, Office of Financial Services, Washington State Department of Ecology

Interviewer: Joy St. Germain

Looking Ahead

An interview with Phil Miller
October 1, 2004


Miller

Position held at time of interview:

Regional Salmon Recovery coordinator, governor's Salmon Recovery Office (on assignment from the Washington State Department of Ecology), since 1998

(Employed by Ecology since 1980)

Education:

- Bachelor of Arts in Environmental Issues, Northeastern Illinois University, 1974
- Master of Arts, Environmental Management, Vermont College of Norwich University, 1984

Joy St. Germain: Before we discuss your involvement with Washington State Environment 2010, could you talk a bit about your work for the Department of Ecology, what positions you've held, and why you chose to work for the Department of Ecology?

Phil Miller: I started working with the Department of Ecology in 1980, first as a temporary employee in Water Resources, and I was later hired on as full-time staff, working on developing the state Environmental Protection Agency Agreement as a planning tool for several of Ecology's programs that were receiving federal funds. In the mid-80s, I took a

break from internal planning and program planning to work for two or three years as the enforcement officer. In the late '80s, about '86-'87, when Andrea Riniker was the director, major new responsibilities came to Ecology very quickly, dealing with hazardous waste management, the Toxics Cleanup Program and Puget Sound cleanup. We experienced a major growth spurt as the department's funding increased, gaining 200 to 300 new positions in the department in a very short time. We started something called Project Head Start, and I was asked to come back from enforcement to be a Project Head Start manager, working to gear up our program planning and our personnel. It was about that time, in the late '80s, that Chris Gregoire came on board, and I got involved in the Environment 2010 project. After Chris left in early 1990s, I continued to work on planning. Then, when Mary Riveland became head of the department, she de-emphasized internal program planning. I was reorganized and took on a different responsibility, working on regulatory reform, which actually I very much enjoyed, through the mid-90s. Then, when Governor Locke was elected, he started organizing approaches to salmon recovery. I've been working with that since '98, on assignment to the governor's Salmon Recovery Office.

JS: You referred to your work on Washington Environment 2010, the subject of this chapter, which was a remarkable long-range planning effort by state government, as you know, involving the gathering of environmental data and information and designed to include citizen input. Will you describe a little bit more about the role that you played and provide a description of the objectives of Washington Environment 2010?

PM: As I mentioned, I was working on internal planning. By the time Chris Gregoire arrived in '88, we'd moved from strictly program planning to what was called midrange strategic planning to assist in budget development on our two-year biennial cycles, but it occurred to me that we really weren't looking very long-range, or very far into the future, in terms of our planning efforts. I had become involved with something through the EPA, which they were working on at their Region 10 Office in Seattle, following up on a national level effort. That effort, called Comparative Risk Assessment, identified categories or topics of environmental problems with associated risks: health risks, ecological risks, and economic or quality-of-life risks. As I worked with EPA, I felt that the Comparative Risk Assessment was a really interesting tool, potentially, for us to do longer-term planning. In fact, on Chris's first day at Ecology, as I was briefing her on what we were doing in planning, I suggested that we had a gap in our long-range focus, that we really weren't looking that far into the future in terms of our planning efforts, and I thought we had a useful tool that EPA was working with nationally and in the region, which we could utilize for long-range planning. I told her that I felt they were looking for states to pilot the use of that effort for long-range planning, and we might be able to get assistance from them. She was immediately interested. At that point, I got the impression she had been hearing very similar things elsewhere, as she'd done quite a bit of stakeholder interviews before she had come to Ecology. I got the impression that one of the things she was hearing was that Ecology's focus was too short-range, too much into the day-to-day immediacy of issues and decisions, and not thinking over the long-term enough. So this idea resonated with her. She asked me to look into what the possibility was of getting support, what that might look like, and we kind of took off from there in terms of designing the process. She was very active in it and provided extraordinary leadership with other agencies and with the governor because she viewed it as not only an Ecology effort, but as a statewide effort. She was given the mandate by the governor to lead the effort, and, at that point, I was in the

supportive role to her. At various times working in the process, however, I was more of a co-manager, particularly in terms of how we were going to do the comparative risk analysis and how that would support the planning process. Then, later, after we had completed the project, I worked with others inside Ecology on how we would follow up Environment 2010 and work toward implementing the recommendations.

JS: What was the purpose of Washington Environment 2010, or what would you name as its objectives?

PM: The objectives included taking a long-range look at the issues we were facing, discerning which were the relative priorities and asking why each had become a priority. We used comparative risks to look at relative human health risks, relative risks in terms of ecological systems and quality of life, including socioeconomic issues that might affect quality of life. From the beginning it was OK to ask, "Are we focused on challenging ourselves? Are we focused on the right things? Are we doing the things we need to do?" We also looked at issues from an interagency perspective, across natural resource agencies, as to what issues were most important and why. Were we doing the things that made sense? What were the things we were doing already that required additional support? What new things might we consider doing? Our major focus was to interact with the public, and with key stakeholders, to see what their reactions would be to the information we prepared and to find out what their thoughts were regarding what was most important and why.

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JS: I recall that there were 12 environmental challenges that came from Environment 2010 and from the process of conducting the State of the Environment Report and recording the concerns heard from citizens in Washington. The challenges focused on major discrepancies between our vision of where we want the state's environment to be in the year 2010, and where the environment was and appeared to be heading at that time. Talk a little bit about comparative risk. How did the Department of Ecology go about identifying priorities and the proper criteria to use in making these choices?

PM: There were several major phases of the project, culminating in the Action Agenda, which identified the 12 challenges. Then there were post-project efforts that the Action Agenda stimulated. But what led up to the 12 challenges in the Action Agenda were the 23 environmental threats, which we had identified through the national and regional efforts EPA had undertaken regarding the regional environment of Region 10: Alaska, Oregon, Washington and Idaho. We modified the federal lists to fit what we felt was the situation in Washington, and then we convened groups of specialists in those program areas, mostly from the state agencies that were involved, but we also reached out to others who wanted to participate with us in analysis of the risks associated with each of those efforts. Again, the three types of risks include human health, ecological and quality of life, and economic risks.

In the area of human health, we divided that primarily into cancer risks and noncancer health risks. For ecological risks, we broke that down into risks of extinction and risks of adverse ecological interactions. We broke those categories down so we could do an analysis of each of that type of risk category for each of the 23 threat areas. It was a pretty challenging undertaking. It took a lot of time, effort and a lot of resources.

From there, we compiled what we called, Environment 2010 State of the Environment Report, summarizing all the information, and we did a tentative priority ranking based on our technical experts committee. We had five priority levels in our ranking process. We included that in the State of the Environment Report as a preliminary ranking, and then we took that to a major symposium at the Seattle Center in November 1989, and basically spent two days holding a workshop. We had over 500 people at the workshop, with excellent attendance from a wide range of individuals. We broke down into, I believe, 17 work groups, and engaged in several hours of discussions with the work groups.

JS: So, there were lots of diverse interests.

PM: Yes. Lots of points of view. We asked those 17 groups for reactions to the findings we had presented. As soon as I got their response results collated, I met with Chris and the staff in the hotel to discuss what we felt the results meant and to look at the major points people raised during the day, and we summarized those. People worked into the wee hours to get those results from the first day ready to turn back the second day. Then, the next day, we presented the results, telling them what we thought we had heard, and then we asked if we were getting that right, as well as asking for general feedback. We closed that workshop with the brainstorming session on what could be done, and that generated a whole bunch of information to compile. We started sorting through, looking for major themes and common ideas. We then organized and refined a set of ideas, and took that out to a series of 12 public workshops around the state. We distributed invitations, but these workshops weren't by invitation only; these were open sessions. We had very good attendance, several hundred people in the course of the 12 workshops. In those sessions, we asked for feedback concerning the priorities we had listed. "What do you think about the ideas that are already out here, which of them do you like, which ones don't you like, and what additional ideas would you offer?" From those workshops, we gathered a large body of information, which was then again reorganized, refined, sifted through and turned into the categories that became the 12 challenges. At that point, we were making a shift from what had been a focus on risk and technical information, shifting to action and focusing on what needed to be done next. We went through a process of refining the actions, and describing some of them in more detail, until we had a set of actions that were going to be the focal points underneath the challenges.

I forgot to mention that as we were doing the State of the Environment Report, and throughout the remainder of the process, we were refining the vision statement for Environment 2010, asking, "What do you want our environment, our state, to look like in the year 2010?" We shared that at the workshops. We were looking for the relationships between the action ideas and what our findings were about risks and the vision. We started with risk-based criteria, and that greatly influenced people's opinions because it was information-based, and we wanted opinions to be influenced by information. Then we, in turn, were influenced by the opinions we were getting back.

The 12 Challenges of 2010

- Raising Environmental Awareness and Responsibility
- Curbing Consumption
- Fostering Consensus and Cooperation
- Improving Air Quality
- Improving Water Quality
- Protecting the Land
- Preserving Wetlands
- Protecting Fish and Wildlife
- Improving Waste Management
- Confronting Problems With Pesticides
- Facing the Specter of Global Warming
- Building Knowledge About the Environment

JS: It does sound like a huge project. Did it require pulling a big chunk of the agency together to make this process possible?

PM: We had almost all of our major programs at Ecology involved. There were a lot of people contributing to the effort across Ecology. Some of the issues were more focused in other agencies. Governor Gardner was very supportive. Chris worked with the other agency directors. They were on the Executive Steering Committee, and then we had a Public Advisory Committee. Chris Gregoire chaired the Executive Committee and usually convened the Public Advisory Committee, and her leadership was instrumental in keeping people's feet to the fire, continuing to show enthusiasm for the project throughout its course, and in encouraging the dedication of resources to the project. We had many hundreds of thousands of dollars of federal support. We were one of three EPA pilot projects around the country, and this was the beginning for about seven years of EPA focusing on these and similarly related projects around the country. EPA wanted to see how information about risk would influence priority setting and decision-making. We were the first to come up with the State of the Environment Report and Action Agenda. As an early bird on that, we did get considerable support from EPA. They also supported us with staff assistance. We had staff assigned to Region 10, in Seattle, who were dedicated to working with us. It would have been very difficult to go through the project without that staff support. I was still in charge of Program Planning at the Department during this period. So, I had one or two additional staff people. Basically they bailed me out in terms of doing program planning at Ecology because I spent almost all of my time with Environment 2010.

JS: When I think about state government overall and the important public policies that maintain the health of our communities, our environment and public health, there's so

much work to be done with limited human and financial resources. Careful assessment of the benefits, costs and tradeoffs associated with various recommendations to the governor and to the Legislature must be made. How did this 2010 effort fit into this decision-making structure in state government?

PM: Well, we had varying successes with that, Chris being the primary driver in the whole process. She was very active in her sponsorship within the department and with the Legislature in terms of how the results of the Environment 2010 Project would be reflected in our strategic planning for budget purposes, our biennial budgets and in our policy proposals to the Legislature, including what we would ask the governor as executive request bills. There was a significant relationship between the 2010 findings, how we worked the budget and requests for legislation at the Legislature for two to four years after the project, at least. There was a blending of information and process—stakeholder and public involvement process—so that the results represented a blend of those two. There was a lot of information generated, showing the relative priority or magnitude of problems, compared to each other, which was reflected in the recommendations of the Action Agenda. Its primary influences were in the Air Quality Program because the analyses showed that far and away the highest health risks were associated with air quality concerns.

The analyses and the public process really supported air quality as coming out as No. 1 on our list. It was in the top level, along with the water quality, the pollution of water, but air was the lightning rod for attention because of the health issues associated with it and the fact that we all breathe the air.

For a number of years we hadn't been emphasizing air quality. We were doing what we needed to do in terms of responding to federal delegation of the Air Program responsibilities to the state, but it was kind of limping along in terms of the resources devoted to it. The analyses and the public process really supported air quality as coming out as No. 1 on our list. It was in the top level, along with the water quality, the pollution of water, but air was the lightning rod for attention because of the health issues associated with it and the fact that we all breathe the air. It's inescapable, and if our air is unhealthy, then we suffer significant health risks. Those are both cancer related and non-cancer related. So, that had a significant influence on budget requests and policy bills that went to the Legislature the next couple of sessions. We got significant increases in air quality funding. We were able to significantly increase the staff. We got a major revision in the air quality laws for the state to help us implement some responsibilities we received from the federal government. We got a focus on the grass seed burning, and we got into strengthening air emissions programs for vehicles in the state. Recently, I got interested in looking at how we've progressed, and I happened to notice the air quality measure showed that we had significant increases in unhealthy days of air quality during the '80s and into the early '90s. Since the early '90s, we've had a tremendous decline in unhealthy air quality days, very noticeable, to a very minimal level of air quality exceedances that violate standards and, therefore, we have reduced health risks associated with them. Frankly, I believe that Environment 2010 had a significant role in accomplishing that.

JS: Phil, some of the approaches to environmental management that were highlighted in the environmental Action Agenda stressed creativity and innovation versus the command and control traditional approach in which government tries to regulate levels of pollution at the source and enforce those regulations with fines and other penalties. Today's environmental problems are more the product of a large number of nonpoint sources, highly dispersed sources, such as private cars and what we do as individual citizens, although strong regulation and enforcement are still tools that are needed. Could you talk about other ways and means of environmental protection identified and discussed via the 2010 efforts? Specifically, I'm thinking about education, economic incentives and pollution prevention.

PM: In terms of environmental education, there's a lot more going on now than there has been before. A lot of it's very decentralized. It's in your educational service districts and so on. I'm not sure, because I wasn't directly involved in a lot of this, what the connection is between that activity today and the flurries of activity that occurred after Environment 2010. There was the governor's Environmental Education Council established after 2010. There have been relationships to the Environment 2010 in terms of the sustainable city efforts. We were encouraging those efforts in Olympia and Seattle, coming out of the Environment 2010 Project, and those efforts have kind of gone their own direction. In fact, a key staff person for Environment 2010 is now director of the Seattle's Office of Sustainability and Environment. We didn't sustain any central Environmental 2010 focal point past the early '90s, so it's hard for me to say just what the connections are between that effort and these efforts as they have evolved today. I know that the governor's Environmental Education Council has kind of gone into hibernation; it is not particularly active. The level of educational activity in the schools is significant, and I know that we sent 2010 materials out to the libraries, but I don't know who's read what. I do know that there is a substantial level of environmental education activity from K through graduate schools; I just can't speak very well about what's the connection there. The other side of education is outreach to citizens, showing that some of their behaviors and activities have environmental effects. Starting with the Environment 2010 Citizen's Guide, there have been a number of related efforts since then and various programs to get messages out about how to be friendlier to the environment. I'd like to think that those can be very effective. I don't work in that arena, so I'm not real close to it. I know that in salmon recovery, where I do work, there's a lot of emphasis on volunteer activities, getting people involved in projects. In fact, across the spectrum of natural resources in the state of Washington today, it seems like in the last 15 years, we have maybe even gone a little too far, as it sometimes seems as if we do almost nothing except by consensus and collaboration. Almost everything we do is by collaboration and consent, and generally I'm a strong supporter of that, but sometimes I've wondered if we might even do too much of that in terms of becoming too slow to react to some situations. It may not be an educational issue; it's just occasionally egregious recalcitrance, an unwillingness to consider

The level of educational activity in the schools is significant, and I know that we sent 2010 materials out to the libraries, but I don't know who's read what. I do know that there is a substantial level of environmental education activity from K through graduate schools.

the community interest in relation to individual rights and activities that impact the environment. You're not going to obtain consensus or be able to collaborate in all cases.

JS: What is the function of economic incentives and what is their relationship to pollution prevention?

PM: The idea is that economic incentives are a means to prevent pollution or other impacts on natural resources from human activities. Those have become the way of doing business, because, as you said, we were very aware, during Environment 2010, that we were on the last legs of being able to rely exclusively on command and control, and that we had to create approaches that would be acceptable to larger numbers of people. I think we're still exploring economic incentives. We've had a period of time in regulatory reform and property rights initiatives where we've become more sensitized to unintended consequences on property values, reasonable rights of people and their behaviors, and how we deal with the conflict. For example, how do we encourage and provide incentives for behaviors that are friendlier to the environment than what is required? I'd say we've probably still got quite a way to go in terms of economic incentives. I think we were trying to push the concept. We have made progress in wetlands banking as an incentive approach to gaining greater environmental benefits. We'll still struggle over additional efforts to have effective incentives. Our Conservation Reserve Enhancement Program is an incentive for farmers to conserve riparian areas. Although that's struggling to be effective, it has promise. So, I think we're working harder in those areas than we used to, but we're nowhere near done. As I've worked in salmon recovery these last years, I've gotten away from the more industrial contamination issues and closer to nonpoint contamination. We're dealing with more chronic issues affecting salmon, less acute issues, and I think my impression is that a great deal of progress has been made in pollution prevention, cleaning up sites, and looking at long-term effects of bioaccumulation. We've still got a way to go but it seems to me that pollution prevention is more of a way of doing business now, and the costs of not preventing pollution have become more apparent to people so that there are inherent incentives to prevent pollution.

JS: Phil, what are some of your most unforgettable memories about Environment 2010? I'm sure you have lots of stories.

PM: I alluded to the November workshop at the Seattle Center in 1989. Well, that was the most stressful day I've had in 20 some years of state experience, but there was a tremendous sense of satisfaction at the close of that first day and also at the close of the second day. I think a lot of the people who were involved with it shared the feeling. At the beginning of the first day, we were struggling and scrambling to finish the setup, getting all the materials there, chagrined that the State of the Environment Report, which was the centerpiece of our presentation, wasn't available until that morning. There was an awful lot of nervousness and trepidation as we were finishing setup. Then that kind of escalated as the numbers started showing up, and we were scrambling to find space for everybody, and to keep the technology working in terms of presentation, and fit everybody in, because it was standing room only in a very big conference hall at the Seattle Center. I will always remember the feeling of exhaustion after the first day, but satisfaction as well as anticipation of the next day. There was relief that the first day had gone as well as it had, and the realization that we were working as a team. As I finally got to sleep, people were still working on meeting the challenges of the next day. Although the challenge was

daunting in terms of, "My God, look at all the material we've got to work with, from 500 plus people and 17 groups—all these ideas." It was, "Wow, this is a gold mine. We mined gold from a gold mine." That was a tremendously good feeling.

JS: What strikes you about what is different or the same today? We're talking about 1988 to '90, as compared to now, in Washington state. In terms of the perspectives of citizens, businesses, tribes, environmental groups, all levels of government, legislative decision-makers, just regarding environmental protection and stewardship, what do you think has changed? What remains the same?

PM: Partnering and collaboration, generally in consensus-based collaboration, has generally become a way of doing business. I was a strong proponent of that. I think Environment 2010 was in the forefront of that, and it was part of that development. There were other processes, too. I'm not saying that's what caused all that, but it was a contributing influence, and was very much a part of that development. That's a tremendous difference in terms of the way in which people seek to get things done. There's a lot of recognition that, to be effective, you're generally going to be partnering with people, going to be collaborating, you're going to be seeking consensus. Again, maybe at times we may take that a little too far now, but, generally speaking, I think it is the way we're doing business. The watershed planning efforts that came out in the late '90s had their genesis in what we were doing then. I'd say there's been a lot of progress in environmental awareness in general. There may be less progress in dealing with what that awareness shows you in terms of your own lifestyle choices. People may still feel, "I'm aware, but what can I do, and what's the point?" On the other hand, I think there is more valuing of the quality of life, and how quality of life contributes to the economy of the state as a fundamental pillar on which the state depends. It's a mixed bag in terms of how effectively we're dealing with what we're aware of. As one issue is dealt with, another issue emerges. It's not like there aren't going to be challenges. We are more aware in terms of global challenges. For example, we were one of the first states to show effort in talking about global warming and climate change, but we're a little stymied in terms of what we're going to do about it. We're examining big issues like global ocean conditions and ocean current oscillations and cycles in ocean conditions. We don't know quite how to connect climate change to that yet, but we're more aware of those things.

Overall, I'd say there's been a lot of progress, but there's still a long way to go. The more people we add to the state's population and to the footprint of people in the environment, the more important it is that the future of our footprint is smaller and lighter.

I think we're still struggling with how we will pay for what we want. We're more aware of what we want and its value, but how will we pay for it? Who pays for it? How is that arranged? Overall, I'd say there's been a lot of progress, but there's still a long way to go. The more people we add to the state's population and to the footprint of people in the environment, the more important it is that the future of our footprint is smaller and lighter. I don't know if we're able to balance sustainability with population growth. I think we're working on that, and I think there's ways to address those issues, but sometimes it seems like we step up to those and sometimes not.

JS: What about the response of business?

PM: Businesses seem to be much more aware of the need to address environmental issues. It's more of a routine cost of doing business. We are looking to support their success while minimizing, mitigating the effects of their success upon the environment. I still think we have communication issues between the environmental regulators and business community, but I also think there's a certain number of business people who don't really want to be bothered. We're going to have difficulty until they see they have responsibilities, and until we can be sure we've done what we can do, as environmental management people, to relate to them in the most positive, most constructive way we can.

Tribes definitely have contributed in terms of their environmental activities, they participate in many of these collaborative processes. They are often the stewards of important places in our watersheds, and they have to deal with their own footprint there, their own objectives for economic well being and use of resources, such as fishing. They struggle through that and generally are pretty good partners.

On the other hand, conflict, for the sake of balancing interests and engaging in issues, is a pretty positive thing. In terms of our government and legislators, collaboration seems to be the order of the day amongst executive agencies at various levels of government.

Environmental groups, in many cases, are engaged in collaborative processes as a partner. There's a certain healthy skepticism they maintain about those processes, and so it's nice to have it both ways. They need to continue to put people's feet to the fire. I think sometimes it would be beneficial for all of us, including environmental groups, to think through issues in terms of the relative priority, so reactions don't become knee-jerk, negative or nonconstructive. Sometimes conflict is a very constructive healthy thing, but, after a certain point, if it doesn't evolve, in terms of addressing the issues, it becomes a very destructive thing. On the other hand, conflict, for the sake of balancing interests and engaging in issues, is a pretty positive thing. In terms of our government and legislators, collaboration seems to be the order of the day amongst executive agencies at various levels of government. I don't work with the Legislature that much, but, from a distance, I observe. They were pretty responsive to Environment 2010.

Legislators seem to have difficulty with long-term thinking because they're in short-term cycles. We had some engagement with the Legislature and Environment 2010. That was probably one of our weakest points. We had some successes in relating to the Legislature with our outputs, but I don't think we've determined how to best relate to the Legislature on long-term issues.

JS: In terms of the future of the agency, do you believe this type of assessment would continue to prove valuable?

PM: I noticed that Chris Gregoire's governor's campaign materials indicate it might be time for a 2020 exercise, and I find that an intriguing notion. I don't think it would need to mirror what was done in Environment 2010. I don't think any process necessarily needs to use the same approaches or analyses or tools, but it's the same basic idea of bringing the

best information to bear and identifying what problems are most important now, asking, "What have we done, and where are we falling short?" Asking what we need to do for the future is a very good question to revisit periodically. To go through a process of drawing a lot of people into that kind of long-term thinking, makes it easier to put the current issues in perspective. I think that's a very valuable process and requires a great deal of leadership and a great deal of collaboration to pull it off. It requires leadership—effective leadership—to inspire that.

Stepping in Front of the Issues

An interview with Fred Olson
February 28, 2005


Olson

Position held at time of interview:

Deputy chief of staff, Washington State Office of the Governor, since 2005

(Employed by Ecology from 1986 to 1993)

Education:

- Bachelor of Arts in Communications, University of Washington, 1969

Joy St. Germain: Fred, tell me a little bit about yourself and your work for the Department of Ecology.

Fred Olson: I arrived at the Department of Ecology in June of 1986 after working as the Editor of the Olympia newspaper, *The Olympian*. Friends had told me that the Ecology director, Andrea Riniker, was interested in making some changes in the Public Affairs Office. So, I interviewed with her, and we got along very well. She offered me a job as assistant director in charge of Public Affairs. So, I worked as head of the Public Affairs shop for just about two years, and Andrea then announced that she was going to leave Ecology and go to the Port of Seattle to run SeaTac Airport. Initially, Governor Booth Gardner announced that there would be a nationwide search for a new Ecology director. Maybe it was two weeks, a month later, when out of the blue, he announced that he was naming Christine Gregoire, who was then our deputy attorney general, to run the department. It was a classic Booth move. He had met Chris Gregoire on Navy homeport issues and a number of other issues, and he really liked what he saw in her. So he said he was going to take a chance and appoint this woman, whom no one had really heard from on environmental issues, to become Ecology director. The morning after he announced Chris's appointment, the P-I (*Seattle Post-Intelligencer*) had a headline essentially saying, she's not an environmentalist. Immediately the environmentalists were very concerned about this new director who, they thought, lacked environmental credentials. I had been serving with Chris Gregoire for two or three months when she named me her deputy director in the summer of 1988. When Chris left, Chuck Clark came in as director, while I continued on as

his deputy. When he left to work for then Vermont governor, Howard Dean, I became acting director for a few months until the Lowry administration in 1993.

JS: So when Chris Gregoire was director, Ecology began what was Washington's Environment 2010, a remarkable long-range planning effort by state government, involving the gathering of environmental data and information designed to include citizen input. What role did you play?

FO: 2010—I wish it had been my idea—but it was Chris Gregoire's idea, and it was one she got very, very excited about. I worked on it, but I didn't have a real central role. Chris and Ecology staff had the real lead. One of the strengths of the project was that it brought in wide participation from stakeholders: citizens, local government, education, federal officials. That, literally, was the strength of it. People's hands on the project were from all different segments of the environmental movement, which made it exciting.

In part, Environment 2010 made us say, wait a minute, maybe we ought to be thinking about how can we prevent these things from happening in the first place.

JS: Why did you and Christine Gregoire, then director of the Department of Ecology, undertake Washington Environment 2010?

FO: Chris was very concerned that we weren't being proactive enough. She felt we were always reacting to problems and never trying to get out in front of those issues. I remember all the work that went into getting the Hazardous Waste Cleanup Program approved, and if you think about it, we did all this work just to clean up messes from the past. In part, Environment 2010 made us say, wait a minute, maybe we ought to be thinking about how can we prevent these things from happening in the first place. So, a lot of our waste reduction plans and related activities came in later, but her point was, we need to anticipate environmental threats and solve them before there is any further damage to the environment. Chris Gregoire still talks, to this day, about when she was with Ecology, and the enforcement folks came to her, saying, gee, look at our enforcement actions. Look how they're increasing. They were proud of the increase in enforcement actions the agency had taken. Well, Chris thought about it, and then said, wait a minute, what kind of measure is this? If you take enforcement action, that means there's been, potentially, some degradation to the environment. Shouldn't we be more excited about a downward trend on enforcement action, which would indicate that we haven't had any illegal dumping, spills or permit violations? Again, the goal being, we don't want any damage to the environment, we want to protect it. So that was her idea of Environment 2010, to find the kind of state that we wanted in the year 2010, and to take steps now to help us achieve that vision. First, it was all about identifying where we want to be, and then taking steps to avoid and to prevent problems in environmental issues that would prevent us from achieving that state in 2010.

JS: I recall that 12 environmental challenges emerged from Environment 2010 process, which came from the State of the Environment Report and from concerns heard from Washingtonians. The challenges focused on major discrepancies between our vision of where we want the state environment to be in the year 2010 and where the environment is and appears to be heading. What was your sense of how that process went?

FO: I think it went extremely well. It provided a terrific tool for the state, at the time, and the 12 challenges really pointed out a very, very significant discrepancy between where we wanted the state to be and where we actually were headed. I've always likened it to a driver who wanted to leave Olympia for Portland and then got on the freeway only to find out that he or she was, in fact, heading toward Seattle. It gave us a chance to look ahead and envision, yes, this is the state of the environment we want. This is the quality of life we want. These are the resources we want to have available—and to ask, "Are we on track to get there?" Certainly, all the work that went into this report indicated that, yeah, there are some good things going on, but there were also some very, very significant problems that, if we didn't address them, we would never achieve the vision we had for the state. I think 2010 was unique because it began a discussion. It's not only how we go about solving the problem, but what we want to achieve. It did, in a sense, turn around the traditional policy-making. Instead of saying, Gee, we've got all these hazardous waste sites, how do we clean them up, it took the more positive approach, questioning what do we want to achieve in order to prevent the degradation or problems that are going to prevent us from getting to that vision.

JS: What do you recall were the high points and the highlights of the process?

FO: I think there were a number of high points. I know that, as far as results are concerned, Chris Gregoire, today as governor, still looks back on the results obtained in the area of air quality. It was very interesting that air quality was found to be one of the greatest risks we had, and yet it was one of the areas where we had the lowest expenditures. And we really didn't have a program in place to help us avoid those risks. Out of that discovery came the Air Permit Program, the Commute Trip Reduction Program, and much, much more. It's somewhat unusual, I think, to have a program like 2010 that generates such concrete, hard results that help protect the environment. The other highlight was that it provided a sweeping view of our state and our environment, this comprehensive list, and great ideas to preserve and protect our air, land and water. Of course, it didn't hurt that significant legislation, which came out of the 2010 process, was successfully passed. Another thing I remember is that the 2010 report emphasized the need for education. I don't think we've achieved, today, that high level of personal awareness about protecting the environment that we all envisioned and hoped for in the 2010 report, but we've still made a lot of progress. One of the great outcomes of 2010 was that of awareness; we can't just pass permit programs and regulations. If we really want to achieve the vision, we've got to get people educated and aware and start a culture of environmental protection that's essentially achieving these goals.

One of the great outcomes of 2010 was that of awareness; we can't just pass permit programs and regulations. If we really want to achieve the vision, we've got to get people educated and aware and start a culture of environmental protection that's essentially achieving these goals.

JS: What were the most difficult challenges of the process?

FO: Without question, the most difficult challenge was watching very, very diverse interests come together. Really, the unique part of 2010 was that it had brought together so many diverse audiences and groups—from local governments to the federal government, to business and environmentalists, agriculture and others—and brought them together on the same page, which took an enormous amount of work. I think the results are the beauty of the project. While it was very, very difficult, I think what was unique and exciting about 2010 was that it got everyone to sit down and try to picture what they want the environment to be like in the year 2010. I think we all found there was more we could agree on than we previously had thought. Once we reached that common understanding of goals, it became an awful lot easier to start talking about steps we could take to work toward that vision. And that, really, is kind of a twist. That says we should start policy development with what we agree on. Rather than start immediately with the problems and demanding solutions, building barriers between interest groups and fighting over so many parts per million allowed on our discharge permits, it's better to start with finding common ground. Once everyone agrees, then you can move ahead from that point. Again, the hard part of it was that there was so much data gathering and so many different groups involved. We generated more than 1,200 pages of data about the state of the environment, which was invaluable, but it also took a huge amount of work and a large number of people. It proved to be the strength in the end, but it certainly was a lot of work and effort to get there.

JS: When I think about state government overall, and important public policies that support and maintain the health of our communities, there is so much work to be done with limited human and financial resources. Careful assessment of the benefits, costs and trade-offs associated with various recommendations to the governor and to the Legislature must be made. How do you feel that Environment 2010 relates to issues of political leadership?

FO: Political leadership was really the genius of 2010, trying to bring together all the people who cared about or impacted the environment of this state. Rather than saying, let's start talking about environmental regulations that we're going to impose to protect our state, it forced the participants to sit down and talk about their vision for what the state of Washington should be. What we learned is that people have far more they agree on than we ever would have guessed. Now we know that if we start politically, with that base, it's a lot easier to move ahead to the tough decisions, regarding what kind of environmental laws and programs we need to achieve that vision. The other significant component in 2010 was the fact that Chris Gregoire brought in risk analysis. For a lot of us, it was the first time we had seen an aggressive effort at doing risk analysis and determining, from an environmental standpoint, an economic standpoint and a personal health standpoint, what were the risks of the various threats that we were seeing in this state. That became a huge selling point as the agency and the Legislature tried to move forward with new legislation and other programs. Having performed this risk analysis gave us a level of evidence that was a lot harder to argue with, but it also helped us allocate precious resources in a more responsible way. As I indicated earlier, threats to the air were some of the highest risks, if not the highest, and yet the amount of expenditures and the regulatory programs were fairly limited. The data we had gathered gave us a huge amount of impetus to beef up those air programs.

JS: What would you highlight as the results you and Chris were most pleased with in this effort, and do you think you accomplished what was expected?

FO: It did accomplish what we expected, and I'm most pleased with the fact that so many people from so many different sectors of the population came together with a common vision. As people who work for Ecology know, what we do can be extremely contentious, extremely divisive. I remember when I was there, you couldn't even give away grant money without having people disagree, whether it was in the form of a loan or a grant, or if it was a 25 percent loan, or a 50 percent loan. Everything was contentious. But, what I remember most about 2010 was that, yeah, certainly, you still have disagreements, but that common base over some of the things that had to be done to achieve the vision we established together was very rewarding. It took a huge amount of work, but in the end, I think it was the right step to take at the time.

JS: What are some of your most unforgettable memories of Environment 2010?

FO: Again, I think what's most unforgettable is all those meetings, and all those pages of documents. Also, in terms of what was memorable, were all those diverse groups coming together on this issue. For those of us who care so much about the environment, to see that concern and that passion for the environment really does extend to people who may not have shared that belief with us was probably the most important, exciting part I can remember.

JS: What message would you want the readers of this chapter in Ecology's history to take away with them?

FO: It helps to start policy development by finding what we agree on, and what we want to accomplish, before we dive into trying to find solutions. When we have that common base, it's easier for people to get together on taking that next step to find the kinds of programs or regulations we'll need to achieve that step. Otherwise, we're saying, this is the goal: We're dictating to people how to get where that goal should be, and it becomes easy to fight over the steps that you're going to take, the regulations you're going to impose, if you don't have common agreement. So, start with common vision, common goals, and then start talking about how you want to get there. That's the most important lesson.

Ranking Air at the Top

An interview with Stu Clark
September 13, 2004


Clark

Position held at time of interview:

Air Quality Program manager, Washington state Department of Ecology, since 2004

(Employed by Ecology since 1973)

Education:

- Bachelor of Science in Chemistry, University of Washington, 1970

Joy St. Germain: Stu, thank you so much for meeting to talk with me about Environment 2010. Before we begin talking about the Air Program and how it was affected by Environment 2010, could you please tell me about when you started working for the Department of Ecology and what positions you held?

Stu Clark: I started working for the department in 1973. I worked in the lab. It was a combined lab with the Environmental Protection Agency. That wasn't really my goal, but the reason I started with Ecology was because I always had a strong interest in the environment and the outdoors. I'm a native of the state of Washington. I love this state, its natural resources, and it seemed like a way to use my technical education for some positive public good rather than working as a chemist somewhere in the bowels of some industrial corporation. What other positions have I had with the department? At one time, I managed the section that was responsible for the ambient air monitoring throughout the state. I am currently the program manager for the department's Air Quality Program. I've been senior policy analyst in the Air Quality Program as well.

JS: What was your experience and involvement with Environment 2010 at Ecology?

SC: I had two roles in Environment 2010. One was to help the Air Quality Program put together the background on the state of air quality and what we knew about related health risks. The person who helped lead that effort from the Air Program was named Dan Johnson, and he and I were also a part of something called the Action Strategies Committee, which looked more broadly across the information that was there and tried to make some sense out of it.

JS: The State of the Environment Report, which was issued in November 1989, really illustrated, with clarity, that our natural resources were suffering under the increasingly heavy load of human demands. Air pollution was identified as the No. 1 threat to the sustainability of our environment and our quality of life. Could you talk a little bit about what that data showed and if there is a different picture today in 2004?

SC: There were two main issues in air quality back in late 1980s and early 1990s. One was that most of the major metropolitan areas of the state violated one or another of the federal

ambient air quality standards, and those were health-based standards. That affected about half the population of the state, roughly. So, half the people in the state were breathing, for a number of days in the year, air quality that didn't meet federal standards. As I recall, it was a little over half the days in the year that we were reaching those unhealthy levels. The other issue—the one we knew much less about—was the whole series of other pollutants for which there were no standards. At the time, there were only standards for six chemicals. We didn't have standards for the rest. These were chemicals we know much more about today than we were just beginning to understand at the time, like benzene or dioxins. We knew there were risks associated with those, either locally or more broadly, but we didn't have a real good handle on a lot of data. We were trying to assess some of that, with the primary focus at that time in Air Quality being public health rather than environmental protection, which it still is. We knew even less in the late '80s about the effects of air pollution on ecosystems, plants, animals and that sort of thing. That's changed today. We very seldom see air pollution reach levels that violate the federal air quality standards anywhere in the state. So that's a huge success, but we know a lot more about air toxics, and we know more about those risks. There are still substantial risks, primarily from pollutants related to mobile sources: cars, trucks, buses, as well as things like planes, boats and trains, any engine that moves. The No. 1 risk we see at this point is from diesel soot and from diesel exhaust. We've learned a lot more about those chemicals, how many of them are out there, and we've narrowed that list of potentially hundreds down to something less than two dozen that seem to be a significant risk today. So a lot of health risk is gone, information is new, and a lot more data is available for us to make those decisions. There's been huge improvement in terms of traditional air pollution, huge strides, and tremendous benefits from strategies that were put in place from the early '90s on.

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JS: As you mentioned, you were a member of the Action Strategy Analysis Committee, participating in the Action Agenda regarding the challenge of clean air, including recommendations about reducing driving and driving-related pollution, reducing pollution from major area sources, and further reducing point source pollution. Do you think that these recommendations helped drive public policy or behavior change?

SC: In the air quality instance, 2010 had a tremendous impact, and the reason is that 2010 identified air pollution—of the environmental issues that were looked at—as the highest risk. That became the impetus for Governor Gardner to introduce substantial legislation in the 1990 session, especially related to those areas of pollution identified in 2010, motor vehicles and industrial sources. Things like outdoor burning and wood stoves were other categories. Substantive changes were made to the state clean air law to address those issues that were particular to Washington, and that legislation passed in 1991 has made the air much, much cleaner in the state of Washington. It was where air quality issues ranked in the 2010 analysis that prompted the governor to get behind legislation. In terms of

behavioral change, as we've learned more about wood stoves and outdoor burning, and as the laws have changed, there's been a lot of educational effort around those localized communities where people learn to use alternatives to burn cleaner, to compost instead of burning leaves in the back yard, that kind of thing. Some of it is enforced by the law, by bans put in place by the law, but a lot of it is based on just public acceptance, awareness and public education. I'm not sure we have the capacity to influence that in a huge way. There was a commute trip reduction law that was created as a part of that 1990 legislation, establishing the state's commute trip reduction program, and that's been successful, but it's a very difficult challenge to try to get people to drive less. What's really been more successful has been better technology on the cars and cleaner fuels, so that by driving your car, you pollute less per mile than you used to, not that we're really driving any less than we did.

JS: So, going to the source of manufacturers rather than trying to cover the masses is one strategy?

SC: Right.

JS: In terms of creating cleaner air, do you think that the key action items brought about by 2010 would be the same, different or a combination, in comparing the late '80s and early '90s to now?

SC: It's hard for me to answer that question because the strategies that came out of 2010, for the most part, were put into place and have been successful. We still know that motor vehicles are the largest source of pollution. That's still what we need to emphasize. The industrial controls, from industrial permits and changes, have been very successful. That focus is less important now. We've done a lot with various types of outdoor burning; so that issue is becoming a decreasingly important issue to turn our attention to, except in selected small communities. In terms of the overall focus—which was, if you're going to really solve Washington's problem, let's focus on motor vehicles—that really hasn't changed in 15 years, but the emphasis has changed. We're not worried about carbon monoxide out of the tailpipe anymore; we're worried about selected toxic emissions from cars like diesel soot, like benzene in the gasoline vapors and things that come from evaporative emissions, meaning as your car sits with fuel in the fuel tank in hot weather, vapors come off of that. So, those are some of things that we never even thought about 15 years ago. We were only concerned about a few of the pollutants that came out of the tailpipe.

JS: Back in 1988, '89, '90, what was the internal agency culture and work environment like during this large visible effort called Environment 2010? For example, were the Ecology employees on board with the effort, particularly with Air Quality Program, and how did the agency staff participate?

SC: It depended on what their role was in the agency. We had people whose job it was to write permits or to make sure permits were being followed. We had technicians who went out and operated air monitoring stations, and we had people who were managing our motor vehicle emission test program. Their work was really day-to-day, focused and pretty confined. So for the most part, they weren't involved in 2010 other than knowing it was happening, that it was a discussion about the future of air quality. Then there were the policy development people in the Air Program who were fully engaged because they were the ones Dan Johnson and I were using to pull together the information and to try to make

sense out of it. So, to that extent, they were the analytical force that helped us get the data together, and because of that connection, they became fairly interested, asking questions like, "What are you going to use this for? Why are we doing all this work? Why should I be spending my time on this rather than my 'real job'? How does it add value?" So they're asking those questions of us, and I think that we were able to convince them, and they were able to convince themselves, that this was critical to the success of the program because this was going to show where we were in terms of environmental protection.

What we didn't know, going in, is that air quality would rank at the top in terms of environmental threats. What we did know was we had specific health problems that were being caused by air pollution, and it wasn't clear, to me anyway, that Water Quality and Waste programs could make those claims. They had a lot of environmental issues, fish kills and that sort of thing. Then there were drinking water issues that had health components to it, but it seemed like we were in a different place than other environmental programs because our emphasis was purposely on public health. We weren't even thinking about how to protect the environment. We were saying, we've got massive areas of the state that violate health standards. Our priority is to clean that up, and maybe someday we'll have the luxury to think about our plants and animals. The sense was we had a really significant air quality problem in this state, and we hadn't really understood the magnitude of it until we did this analysis.

JS: It's so fascinating to hear you talk about public health as part of Ecology's mission. I've always felt that way, but not everyone expresses it like that.

SC: There are differences in the way we, as an agency, think about that. If you're talking about a piece of land that's contaminated, you don't want people on the site. You don't want them to get those contaminants into their systems, either in the drinking water or ingesting it in some way, but there's a whole different way to isolate that from the public. Once it's in the air, you don't have any choice. You have to breathe it. So I think that is part of what came out of 2010. A lot of people hadn't thought about air quality, about how serious a problem it was. I think it was more of an education for people outside of Ecology, outside of the Air Quality Program and air quality world, about what it is we did, and its relevance.

JS: Stu, it seems to be a challenge to engage citizens and the public in long-range strategic planning at the state level. What do you view as the benefits of an effort like 2010, and, then, what do you think are the difficulties of having broad dialogue between a governmental agency and the public and all the various stakeholders interested in what the Department of Ecology does?

SC: It is a challenge. If you can do it well and engage people from a broad spectrum of society, then you're going to get to a place where there may not be consensus, but there will be a lot of similarity in thinking. You'll have a general path where you'll find fundamental agreement, and that just makes the decisions easier, the policy changes easier, because people have understood the need, understood the options, and made some conscious choices. Those participants have felt they were engaged and listened to in that process, but the difficulty, when you're talking about that broad a spectrum of society, is that people are going to be skeptical of motives and agendas. It really takes some extremely dedicated and dynamic people, real leaders, to be able to keep people engaged, to keep them invested in the process, keep pushing to make it happen. It's a huge amount of investment because we

were talking about air and water, waste, land issues, regional and global pollution concepts, lifestyle behavioral issues, and there's no way you can get everybody in the room.

JS: Well, today the year is 2004, and the year 2010 is actually coming up now. I remember when that year seemed so far away. Do you think that work done through the Environment 2010 project will be looked at sometime to assess where we have come, where we are, where we need to go in environmental protection? There's a lot of data and information there, and now 2010 is almost upon us. Any thoughts?

SC: I know that there were a series of State of the Environment Reports that came out, at least for a few years afterward, that showed what the trends were. As for the Air Quality Program, it was a tremendous amount of work that showed us where we were, and it also showed us that there were some serious gaps in what we knew, things that we could measure or know about, but which we hadn't been paying attention to. We aren't looking back at the Environment 2010 products anymore, we're looking forward, but it's created a very substantive foundation. I can't really speak for the rest of the environmental issues as to whether that is true or not, but I think we've moved past Environment 2010 to a point where there is a much more conscious effort to try to understand the state of the environment, to try to understand what's changing in terms of the pressures on it, and to try to look carefully at the success or lack of success. Cost effectiveness is another issue. The administrations that we've had have been very concerned about efficiency in government, performance in government and regulatory reform. All of those things are part of the initiative that tells us we need to continue to question what we're doing. There are other issues that were sort of farther down the list in terms of their relative importance. They've fallen by the wayside. There wasn't a home for them, necessarily. Global warming was mentioned in 2010, and nothing was really done about it, that I'm aware of, but it has recently received a lot more attention, and now it's beginning to be addressed, both from the Legislature and the Governor's Office, but not because of Environment 2010, I don't think. So there are probably other issues on that list of environmental topics in 2010 that I'm sure just sort of faded away, because there wasn't a specific agency that was responsible for them, or they didn't seem to rank high enough that agencies wanted to shift and try to bring them into their work. It would be interesting to go back and look across that whole range of 10 or 12, or whatever it was, 15 or 20 threats to the environment, and try to assess them all.

JS: What are some of your fondest memories about Environment 2010, if you have them, or what do you recall as being significant or effective from this effort?

SC: I guess one thing that comes to mind is Chris Gregoire and her energy, and her sense of mission about this, how important this was to be able to know where the future of the department should go, and her personal commitment to it. That was the motivating force across 2010. It kept the other cabinet agencies involved at a high level. She made sure that people in Ecology invested their time and substance in this, and the products that came out of it were quality. Just to see her leadership was an incredible and inspirational thing to me. From the Air Quality perspective, it was really the first time we tried to take a comprehensive look at air pollution and its effects in the state of Washington. It was a fundamental piece of work and the foundation for us, and I'm really proud that work was done. It's a step past 2010, but my memories are actually more about what immediately followed, and that was the legislation that Governor Gardner introduced, because I was the

primary point person on trying to work that in the Legislature, but that's another story for another day. And so those weren't all fond memories, let me tell you, but it took a year out of my life—a year that I'm glad I invested—but there were some real highs and some real lows in that process. Ultimately, having that legislation pass was an incredible feeling.

JS: What would you say were the greatest challenges faced in administering this hugely ambitious project, either at the agency level, or perhaps with what you were doing in the Air Quality Program?

SC: The first daunting challenge was getting what we knew together for people who are not experts in water quality or environmental effects of pollutants on ecosystems, or whatever the issue was. It can't be simplistic, but it's got to be simple enough so people feel they have some sense of it. That was an incredible effort, and very difficult to do. You're pulling a lot of people away from their jobs and telling them this is something they need to do, and there wasn't a system that was there where you could just go get the information and put it together and analyze it. So, that was a real challenge. The second big challenge is how you get people engaged in something of this scale, keep them engaged, and make sure that when you get to the end, you really have a clear picture of what people are thinking, what they want, what their priorities are, what their needs are, what's important to them. So, much of that has to do with the personalities that are leading the effort and their ability to get people committed to them and to their project. I didn't really have much of anything to do with the outreach part of it, or the connecting part of it at all, but that had to be at least as hard, if not harder, than gathering the data and compiling it, and trying to make some sense out of it. Then, there are those who had to try to decide if a certain species of fish in some river is more or less important than some species of plant in another part of the state, versus some contamination in soil or some sediments. A lot of that is subjective. It depends on your personal value system. I tended to prioritize in terms of which were direct threats to public health. That became more important to me than if it was a direct threat to the ecosystem or the environment, and that was more important than something that was more aesthetic in nature, like littering or visibility degradation. I'm sure other people had totally different ways of evaluating what was important. And even at that, it's hard to know. Is asthma less important than heart disease? I don't know. It depends on the case. It really does.

There's so much attention and so much polarization in environmental issues, that we really need a periodic reassessment of where we are in order to get people to step back and take a look at what we know, what we don't know, what problems have been fixed, what problems remain. We tend to do that in really small pieces rather than a more holistic way.

JS: Stu, what message do you want the readers of this chapter in Ecology's history to take away?

SC: I would like them to understand what this effort was, to look at it through their own lens and see what 2010 recommended, see if they think it's of value or if what we did made sense. I would hope that they would see not only that we made substantive recommendations, but to ask the question, did we follow those recommendations? Were we

successful if we did? What's the record of success that came out of this, and how would we do this better in the future? There's so much attention and so much polarization in environmental issues, that we really need a periodic reassessment of where we are in order to get people to step back and take a look at what we know, what we don't know, what problems have been fixed, what problems remain. We tend to do that in really small pieces rather than a more holistic way. I think it helps to step back, and that means everybody has to let go a bit, but I think it would be valuable to think about redoing Environment 2010, call it Environment 2020, to consider a large-scale reassessment of where we're moving and what we're spending money on. I think it would help government's credibility. It would help people feel more connected to what's happening. It would also help if we were to get more commitment across the board from tribes, local government, industry and citizens to help assess problems and design solutions.

Chapter Ten - Voices from the Table: Negotiating the Hanford Cleanup Agreement

On May 15, 1989, the Department of Ecology, represented by then-Director Christine Gregoire, entered into an unprecedented agreement with the United States Department of Energy and the Environmental Protection Agency to clean up radioactive and chemical waste at the Hanford Nuclear Reservation in south-central Washington state. Known as the "Tri-Party Agreement," this negotiation process enacted first-of-a-kind solutions to the critical and complex challenge of protecting human health and the environment for south-central Washington and all who use the Columbia River. Interviewees for this chapter—key negotiators for the Tri-Party Agreement—reveal the story behind the story: an account of critical decisions made and conversations that took place behind closed doors, at the negotiation table, and, on occasion, as the result of heated debate. The history of the Hanford Nuclear Reservation and its significance to the Manhattan Project is discussed, as is the formation of Ecology's Nuclear Waste Program, which leads the agency's continued commitment to the Hanford Nuclear Reservation cleanup.

Chapter Advisor: Larry Goldstein, Section Manager, Nuclear Waste Program

Interviewer: Maria McLeod

First at the Gate: Ecology Uncovers Hanford's Violations

An interview with Roger Stanley
July 21, 2004


Stanley

Position held at time of interview:

Retired, Washington State Department of Ecology, 1972 – 2004

Former Program Manager for Ecology's Nuclear Waste Program, 1990-1992

Education:

- Bachelor of Arts in Biological Sciences, Central Washington State College, 1972

Maria McLeod: Roger, I plan to ask you a lot of questions about your role with the Hanford Nuclear Reservation and the 1989 Tri-Party Cleanup Agreement. But before we get to that, I'd like to know the history of the relationship between Ecology and the Department of Energy's Hanford site, including the history of the site itself. For example, in regard to the site's historical significance, I've read that the plutonium used for the atomic bomb, "Fat Man," which was dropped on Nagasaki in 1945, was processed at the Hanford site. So, in relation to that, what's the general history?

Roger Stanley: To begin with, the activities of what we now refer to as the U.S. Department of Energy, or the DOE—owner and operator of the Hanford site—grew out of

World War II and the federal government's nuclear materials or nuclear weapons program. Those war efforts led to the establishment of the Atomic Energy Commission (AEC), which eventually grew into the DOE. There had been a lot of secrecy around the whole nuclear weapons program in the state of Washington. When we started working on Hanford issues, the Hanford site operated pretty much as a closed shop. The state of Washington basically hadn't had anything to do with Hanford. So, you had the DOE operating what had been, essentially, a nuclear weapons facility in south-central Washington since 1943, but the state hadn't come on to the reservation.

MM: How large an area does Hanford cover, and why was it located in Washington state?

RS: The reservation itself is about 560 square miles located in south-central Washington in the tri-city area of Kennewick, Pasco and Richland. The amount of ground taken up by DOE facilities within the reservation is actually pretty small. Most of it is open desert with the Columbia River running along the northeastern edge of it. It was established as a federal reservation in that location because it was arid, there was a relatively low population, and, primarily, because of the proximity of the Columbia River. So as part of the war effort, the DOE—actually at that time it was the Department of Defense since this was a war effort—had constructed eight reactors along the Columbia River, with the Columbia serving as pass-through cooling water to cool the reactor core. Also, they had the Columbia River as a power source that generated plenty of electric power.

MM: So it was hydroelectric power generated from the Columbia that powered the Hanford Nuclear Reservation?

RS: Yes. Well, from dams. I don't know exactly when the dams were put in place, but there was plenty of power out here in the Pacific Northwest, and the Columbia River could serve as cooling water for these eight reactors, which, for a while during the war, were running flat out. The war effort was to pull out all the stops and do what had to be done. So, it was only after that period of time that the dynamics of Hanford started to change.

MM: How and when, working for the Department of Ecology, did you become involved with the Hanford Nuclear Reservation?

RS: It was probably the mid-'80s when I started to get involved in Hanford. When I transferred over to the Industrial Section in '78, I was basically a junior level gofer and an aide to the engineers in the section. As you may know, the Industrial Section has the responsibility for the large industries in the state: oil refineries, aluminum smelters, and the pulp and paper industry. At the time I joined the Industrial Section, they had about a dozen people and nobody was doing anything with Hanford. In 1983, a few years after I had joined the section, the state received its initial responsibilities for hazardous waste management when we got the core program from the Resource Conservation and Recovery Act (RCRA). I started working with large industries around the state, bringing them into compliance with those laws. The Hanford site looked somewhat like a large industry, so we dove in. The stance of the DOE, when I first started sticking my finger in this pie, was, you don't have any authority here. They'd talk to us, they'd be polite, but there was no recognition of authority. So, I started learning about the Hanford site while working from a political and policy standpoint on the DOE, trying to get them to recognize that there was a level playing field and they had to play by the rules, too.

MM: You mentioned RCRA. Can you describe that law and tell me how that law could give Ecology the authority to regulate a federal agency?

RS: The federal Hazardous Waste Program is RCRA, and its parallel state program is the state's Hazardous Waste Management Act. So, you've got a federal statute and a state statute that were passed in 1976. Ecology subsequently worked a number of years to draft all of the various requirements that would go along with that, the so-called core RCRA program. Under the federal RCRA program, states can be given the responsibility and the authority to force compliance within their boundaries. So, in 1983 the EPA delegated the overall responsibility to us with the core RCRA delegation. Then, as the state of Washington and a few other key states started to push on the DOE, we eventually got a subsequent delegation for so-called mixed waste—the hazardous wastes that also have radioactive components. That came later, in 1987.

MM: Given your background, your knowledge of hazardous waste, and your knowledge of the history of the war effort and what part Hanford had played, what kind of environmental problems did you suspect had been occurring there?

RS: I knew very, very little about the Hanford site. I just knew it was big, and there had always been a lot of rather secretive things going on over there. I didn't know anything about the nuclear fuels reprocessing cycle or what type of waste it generated. I had no idea how many tanks they had over at Hanford. I didn't know how many or what type of landfills, or what type of direct discharges to the ground may have gone on. So, when I first started going over there, it was mainly to try to understand who ran the place, how many people were over there, what they were doing, and what types of hazardous waste there were. I didn't really draw much of a distinction between radioactive and non-radioactive. Hazardous waste, my area of concern at the time, was an all-encompassing term, and the state's authority hadn't really been made clear. Those battles hadn't been fought yet.

MM: Can you describe the nature of your first visit to Hanford, and what kind of inspecting you were doing, if any, and how you found your way onto the reservation?

RS: My first trip or two to Hanford was with a fellow from EPA Region 10, the EPA's Northwest regional office in Seattle. At that point in time, liquid discharges were regulated under what's called the NPDES Program, the National Pollutant Discharge Elimination System, which is basically the federal program under which liquid discharges to bodies of water would be regulated. Since the Hanford site was a big federal reservation, the responsibility for monitoring that type of discharge had not been delegated to the state of Washington, so the EPA still monitored those. EPA, frankly, hadn't made those discharges a priority, but I got a phone call at one point in time from a fellow at EPA who said he was going out to look at some of the discharges from one of the eight reactors. At that point, the mid-'80s, they had all been shut down except one, which was the N-reactor. It got shut down within a few years, but my EPA contact said that he was going out to N-reactor to take a look around. Technically, he was doing a NPDES inspection, but it was mainly a look-see. So, he asked me if I would come along since it was known that I had been snooping around the Hanford site, trying to figure out what was going on. So, the first time or two I went out there under the auspices of a wastewater discharge permit inspection that was actually being led by EPA, since they had the authority.

MM: In what ways was the DOE out of compliance?

RS: First of all, we have to back up to naïve little me when I first started trekking over the Hanford site. I wasn't thinking mixed waste, and I wasn't just thinking chemically hazardous waste. I was only thinking of hazards and risks. In other words, my understanding of the violations grew, and it grew from a tiny seed. For example, you bump into one facility and realize they don't have any groundwater monitoring system around it. It's a trench of some sort, and they're not monitoring for hazardous waste. Right off the bat, you've got one of the basic rules of any hazardous waste facility—a principal RCRA violation. We gradually became aware of more and more hazardous waste sites, and so we had an RCRA groundwater monitoring compliance program that grew over the years. That's just one example. Others would involve the extent to which DOE actually determined the character of their waste—the designation, to actually analyze wastes that are generated—how they monitored them, how they packaged them. There were a number of what today would be classed as hazardous waste treatment, storage or disposal facilities that would require permitting and control under hazardous waste law. There were no permits. They had all these activities going on, and there were no permits. There was very little environmental awareness in Hanford's early years. There had been widespread practices of direct discharge, all kinds of discharges, many of which were largely water, but which had hazardous waste discharged into them going directly to ground. When I first started going out to Hanford, and the DOE gradually started to divulge the various types of activities that they had going on, there were a few years where they never even mentioned the word "crib" to me, and they never mentioned tanks. Cribs were facilities rather like septic tanks, or French drains, that they would discharge hazardous waste to, and it would leach into the ground and the groundwater. In those early years, they never thought that the state of Washington would ever have any direct authority over those types of activities. The list of noncompliant sites and the violations was long.

There was very little environmental awareness in Hanford's early years. There had been widespread practices of direct discharge, all kinds of discharges, many of which were largely water, but which had hazardous waste discharged into them going directly to ground.

MM: And these activities were happening from, essentially, 1943 to the mid-'80s?

RS: That's right.

MM: In relation to your early experience with Hanford, when Washington state and the Department of Ecology were kept at bay, so to speak, what was the nature of security at the site at that time? I understand what they were doing had to be, for reasons of national security, highly protected, so I'm curious how that was represented.

RS: In the early years, security was greater because there were some fuels reprocessing still going on. The basic process at Hanford was to produce irradiated fuel rods out of the reactors, with the N-reactor being the last one, and then gradually run those rods through a series of reprocessing facilities to get the nuclear materials out of them. Unfortunately, you wind up with a large volume of radioactive waste that is left over. When there was still some reprocessing activity going on, security was greater and the security budget was greater,

undoubtedly. They had a few helicopters and a lot more vehicles. They had some military-type armored cars with machine guns on top of them. They had a few of those in the early days that they would use if they were taking nuclear materials from one facility to another. There would be a tremendous amount of security around the truck as it drove over to another facility, that type of thing.

After the N-reactor shut down in 1986 and the PUREX facility, the principal reprocessing facility, was shut down for the final time, the security program eased off a little bit. They still had security checkpoints, and everybody had to be badged. You had to go through a certain amount of training, and there were certain levels of clearance, depending on who you were and what type of information you needed to have access to.

MM: In terms of the size of the facility compared to other states hosting these DOE facilities, where does Hanford fall?

RS: It's one of the largest, if not the largest, both in scale, just square miles, but more importantly, based on the volume of waste that they actually produce. Hanford was basically the big kahuna of the DOE sites.

MM: You mentioned earlier that you were able to first enter Hanford with an EPA inspector under the auspices of the NPDES permits. When you did start going out there of your own accord, representing the Department of Ecology, and what was that like?

RS: The phrase they would use then, in the mid-'80s, was that they would talk to me as a matter of comity, which means, courtesy. That's it. Then, not coincidentally, what they would show me on the reservation was under their control. So, I didn't see much. I saw a lot of sagebrush. And if I remember right, under the RCRA regulations, generators of hazardous waste had to notify or submit notification of their activities to the EPA. I believe it was between May and the fall of 1980 that the DOE, including the Hanford site, had submitted what was called a protective filing. So, they submitted an application, a "Part A" application that had one facility noted on it, which was a non-radioactive facility—a landfill actually—which was located a fair distance away from the real guts of the Hanford work. That was a protective filing that they did more for legal purposes than for anything else, but that was the beginning of the DOE starting to recognize that they would be subject to hazardous waste law, too.

MM: So that was a kind of symbolic gesture, but what, in your memory, was the beginning of the tide turning in the other direction regarding the DOE's recognition of responsibility? What was the history that led to that?

RS: Actually, between '85 and the '88-'89 timeframe, before the Tri-Party Agreement was actually negotiated, there was a huge legal battle over the extent to which both federal and state hazardous-waste law actually applied to DOE facilities nationwide. When I was in the Industrial Section, I was given a fair amount of leash by section management to go after Hanford. Once I started asking hazardous-waste-related questions—what kind of facilities do you have, how much waste do you generate—once I started asking those questions, all their shields went up. Attorneys got involved and their response was that basically the state of Washington didn't have any authority there, you can't make us do anything. So, there was a period of two or three years when I was working on Hanford issues here in the state,

trying to gain a better understanding of exactly what was the nature and extent of their activities, while at the same time I was working on the political front back in D.C.

One of the events at a national level was the lawsuit at the DOE's Oak Ridge, Tennessee, facility. It was filed at the behest of a local activist group in Oak Ridge called The Legal Environmental Assistance Foundation, or LEAF. They were the local activist group keeping an eye on the Oak Ridge's Y-12 reprocessing facility. Anyway, they had gotten in contact with a national environmental litigation organization, the NRDC, Natural Resource Defense Council, and an attorney there named Barbara Finamore, who was running point on this Oak Ridge situation. LEAF filed a suit under RCRA, the federal hazardous-waste statute, asserting that the DOE's activities at its Y-12 facility that generated hazardous waste were subject to RCRA. In April of 1984, the DOE lost that suit, a few months after which they recognized that their hazardous-waste activities nationwide were subject to RCRA to the same extent as was the public sector. That was the first big battle on a national scale.

MM: In terms of legal battles here and at sites across the nation, what transpired next?

RS: The problem with that particular Oak Ridge case was that recognition only went as far as non-radioactive hazardous waste. Far and away, the greater volume produced is mixed waste, which, in addition to meeting the classification of hazardous, is radioactive. So, you have that initial legal battle in 1984, and then there followed—between '85 and '87 roughly—a period of time when the legal battle essentially ratcheted up, both on the part of the DOE and key environmental groups, which at that point in time were primarily the NRDC and the Sierra Club. There were a number of key states involved, not coincidentally host states of DOE facilities: Washington, Ohio, Colorado, South Carolina and Tennessee. Those were the states that had the most activity and the most to lose. Congress started to get very interested, and the battle shifted to what would subsequently be called mixed waste, that is, the hazardous wastes that also have a radioactive component.

MM: Some folks at the agency have mentioned to me that your congressional testimonies were instrumental in helping to grant greater authority to the state. I realize that there were a number of cases happening concurrently, but I'm curious as to what your experiences were and how you ended up in D.C.?

RS: Initially, I was able to take advantage of the relationship that I had started to develop by talking to the NRDC's legal staff; first Barbara Finamore, who had worked on the Oak Ridge case, followed by another one of their attorneys, a fellow named Dan Reicher. Dan had the contacts on the Hill, so I would periodically go back to D.C., meet with the NRDC, basically Dan Reicher, and then I would testify at a number of hearings, both on the House and Senate side. In particular, there was a subcommittee on Oversight and Investigations, chaired by now-Senator Ed Markey. Among other things, they had the responsibility to watchdog federal reservations. There were some members who were, frankly, a bit soft on federal reservations, and then there were other members who were trying to hammer DOE, pushing them to do the right thing. Typically, those hearings leaned toward a state/environmental activist standpoint with the crux of the issue being whether or not the DOE would be subject to these hazardous-waste laws, even insomuch as they pertain to mixed waste. So the battle started in the House, and then it shifted over to the Senate Committee on Governmental Affairs, which was chaired by John Glenn. So I testified over there once or twice as well.

RS: My testimony was basically two-fold. First of all, I gave testimony based on what I had learned about the Hanford site and its hazardous waste activities to date. Over those years, each six-month period, we gradually learned more and more—basically that there were larger volumes and many more sites and types of sites than we had previously realized. So, my testimony laid out what we were seeing on the ground, what the volumes were, and then it reminded the committee what federal and state hazardous-waste requirements were at that time, and then state DOE's position, which was 20 miles out of compliance and fighting any imposition of state authorities, tooth and nail.

MM: What were the results of your efforts with Congress and the NRDC?

RS: It was at that time, when the DOE was battling any recognition that its mixed wastes were subject to RCRA's and delegated states' hazardous-waste programs, that congressional interest rose. There was a letter that Dan Reicher and I worked on, which many members of Congress signed. Dan actually did the legwork, as far as running around to all the various offices up on the hill and getting congressmen to sign it. So at the end of these battles with the DOE, came this letter from Congress saying, come on, the time has come. You've got to tow the mark here. The private sector generators are subject to hazardous-waste law, you are too, regardless of whether yours are mixed wastes or not. Not that the battle stopped there, but that was the basic legal recognition.

MM: You know, one thing we haven't talked about is CERCLA, the Comprehensive Environmental Response, Compensation and Liability Act, and how that fits in with RCRA and the issue of federal versus state jurisdiction. Can you talk about that?

RS: Let me say just a little bit about the federal RCRA and CERCLA, or Superfund, programs, and how they play out in different states. The RCRA program focuses on what are termed active hazardous-waste facilities. The RCRA program can be delegated to any state that proves that they have a program that is up to snuff. So in the state of Washington, we've taken great pains to build what is nationally viewed as quite a good hazardous-waste program. We were, consequently, delegated first the core RCRA authority, and subsequently, we were delegated authority from EPA for mixed wastes as well. Now, in that instance, legally what happens is that RCRA falls away, and it's the state and the state's delegated program through which compliance with the state regulations is enforced. The program has to be consistent with RCRA, but it's the state law that actually applies. In the instance of the federal Superfund program, CERCLA, which focuses on historic disposal sites, that program is not delegated to states. Consequently, it's the EPA that continues to have the legal authority to enforce that compliance. Now, there's a lot of legwork that the state does on their end of the program concerning old sites, but when it comes down to signature authority, the actual authority must go back to EPA. In the case of Hanford, it goes back up to Region 10, basically.

MM: I'm interested in the fact that the DOE and the EPA are both federal agencies, so, technically, the EPA couldn't sue the DOE to force compliance. So how can the EPA, in this situation, enforce CERCLA, or do they have to use Ecology somehow to enforce it?

RS: They do not. Here we're talking about CERCLA, so we're talking about historic hazardous-waste locations on the Hanford site, including those with radioactive wastes in them. So EPA has the legal responsibility, and it's EPA's Region 10 office that handles it. They can't sue DOE, but they can enforce. They can impose penalties against the DOE for

Signing of the Hanford Tri-Party Cleanup Agreement in Richland, Washington, May 15, 1989. 1st row, Agreement signers/negotiators: Mike Lawrence, U.S. Department of Energy; Robie Russell, U.S. Environmental Protection Agency; and Christine Gregoire, Department of Ecology. 2nd row, Agreement negotiators: Ron Izatt, U.S. Department of Energy; Paul Day, Environmental Protection Agency/U.S. Public Health Service; Roger Stanley, Department of Ecology.

failure to comply and they have, on occasion, done that. The state's authorities pretty much focus largely on the delegated RCRA program, and now and then on state water law, which is not part of the Tri-Party Agreement per se, but it is a law that actually applies on the Hanford site.

MM: What were the activities, or main events, that led to the Department of Energy's willingness to enter into cleanup agreement negotiations with Ecology and the EPA?

RS: There are two main issues here, one of them being that Section 120 of the federal Superfund statute, or CERCLA, focusing on historic hazardous-waste sites, was in place at that point in time. Section 120 directed the EPA to go out to Department of Defense facilities nationally, most of which were DOE facilities, and hammer out what were called, under Section 120, federal facility compliance agreements. So, at that point in time, late '80s, the EPA was saying to themselves, we've got a new job given to us by Congress. We have to go out and get these CERCLA agreements at federal facilities, most notably DOE facilities and military sites. The second main activity was that the Washington and other key states that harbored DOE facilities had received delegation for their RCRA program. So, you had states that were pushing on active hazardous-waste facilities under their delegated RCRA program. You've got EPA and the states beginning to realize it would be beneficial if they hammered out some sort of agreement about, in this case, DOE sites.

The other part of this dynamic was Christine Gregoire. It was in the middle of the Senate's activities, in 1988, when Chris came on as director of Ecology. Once Governor Gardner

asked her to run point over the Department of Ecology, it didn't take very long for Chris to recognize that Hanford issues and the risks that the Hanford sites posed were of great import to the citizens of the state. She picked up the flag and drove real hard. We had a lot of threads that, over the years, had been converging. So the Department of Ecology had been authorized, and negotiations for the Tri-Party Agreement began in 1988.

MM: You mentioned that Ecology's director at the time, Christine Gregoire was the catalyst—that she "picked up the flag" on Hanford. Can you give me an example of her leadership on this issue?

RS: When it came to Hanford issues, Christine Gregoire was hands on. She wasn't a director who would periodically sign something and that would be the extent of it. No, she was a long ways from that. When she joined Ecology, she had come from the Attorney General's Office, as deputy attorney general. In fact, the first time I met Chris, Ken Eikenberry was the attorney general. At one point, after the legal issues had started to heat up and Congress had started to get interested, Ken asked for a brief. So I went down to the Attorney General's Office and briefed Ken, and Chris was sitting right alongside him. I wondered who that young woman was. I was soon to find out.

MM: OK, so here you had a new director of Ecology, congressional testimony, key states getting RCRA authority, the EPA enforcing CERCLA. So how did you lead into the negations for the Tri-Party Agreement?

RS: First of all, the DOE realized that Section 120 of CERCLA directed EPA to go out to federal facilities and reach agreements. But, in the instance of Hanford, a lot of the activity, frankly, was not CERCLA. It was RCRA-type activities. That meant the state was going to need an agreement as well. At first it was a bit of a stutter step. Initially there was a Tri-Party Agreement reached that was, frankly, on the back of an envelope. I mean, there were no guts to it at all. There was no substance, and it wouldn't have driven compliance with either of the major statutes. So at that point in time, early '88, the two lead negotiators were me, for the Department of Ecology—from the standpoint of who was doing the legwork—and Jay Manning for the Ecology Division of the AG's Office. When particular issues heated up, Chris would come to bear. Jay and I had the responsibility to keep her informed, and, even though she had a lot of other things on her plate, she got involved frequently. Jay was basically carrying the ball for the AG's Office at that point in time. Once the Tri-Party Agreement negotiations got going, not only was I working with Jay Manning and with Chris when some of the harder issues started to be encountered, but I had the beginnings of my staff who were working on the negotiations as well. Those negotiations took about 14 months, including the public-comment period.

MM: How did the negotiating teams operate? Did you have subcommittees? Did you meet as a full team with your EPA and DOE counterparts? How did it work?

RS: The three parties came to the table. First of all, we agreed that we would segment the negotiations so that there would be one segment that would focus on the negotiation of legal terms. Those are the articles of the current Tri-Party Agreement. If you crack it open, you'll see the first half of it, roughly, is a number of legal articles. Jay Manning, naturally, ran point on those. I spent a lot of my time, frankly, working with Jay on those articles, and then I also spent a fair amount of time on the development of what's called the Action Plan, the second half of the Tri-Party Agreement. This part spells out all of the various cleanup

processes, under which we also negotiated what are called milestones, the compliance timeframes for all the various projects. So we had a functional division of the negotiations between the legal portion of the TPA, which had the articles, and the action plan with the milestones. Basically, my involvement was split between the legal articles and the milestones, i.e., the schedules. Of course, it was the schedules that would subsequently drive the money—how much it would cost the federal government to dive in to clean up the Hanford site.

MM: I'm still trying to get a sense of these negotiating teams. Who was at the table, and who was in the background, and especially who was representing the EPA and the DOE? Did you divide up into your respective teams, meet separately, and then come back to the table? How did that work?

RS: The only time we used sub-groups was when it came down to negotiating the technical schedules. Of course, there were a lot of issues that had to be understood before one could develop actual schedules. You had to know what the project was, what the risks were, all of the aspects that were associated with the different types of sites out at Hanford. Typically what would happen, whether or not we were hammering out a particular set of milestones or whether or not we were haggling out the articles of the TPA, would be that we'd come to a single table—the representatives of each of the three agencies, both policy and legal types of people, like Jay and me. If on that particular day we had been working on a RCRA issue, the state of Washington would be the predominant environmental agency because they had the responsibility and the authority. So EPA, in that case, would be the backup. If we were working on a CERCLA issue, the reverse would be true. And the basic negotiators for EPA were Randy Smith, leader of EPA's negotiating team, and Andy Boyd, Legal Council for EPA. Robie Russell, Regional Director of EPA, had the signature authority. For the DOE you had Ron Izatt and Hank Maguire, and Mike Lawrence as signer. So, the three groups would hammer out language that would take shape over time. Of course, every party had time to go back to their headquarters and bounce it off people, and suggest changes to take back to the table. Periodically issues would heat up. There were innumerable occasions when Jay and I would have to step out into the hall at whatever hotel or location we were negotiating from, call Chris, tell her what was going on, what the issues were, and ask for direction. So, she was deeply involved throughout, whether it was behind the scenes with Jay and me bouncing ideas off her and trying to figure out what we were going to do next, or, when the pot boiled over, she would grab it and work it directly.

MM: In terms of the negotiations, what were some of the more significant ways that you drew the DOE into compliance? As a result of the Tri-Party Agreement, what was the most significant difference between the way they operated the Hanford site then as opposed to now?

RS: First of all, we had the federal/state hazardous-waste requirements going for us. So, we had those cards we could play. The DOE knew what kind of facilities they had out there and that they were noncompliant. Even though they could argue about how long and what types of work they needed to do to actually come into compliance, the fact that they were required by law to come into compliance was not something that they could argue. Not that they didn't try now and then, but they had a weak hand there and they knew it. Basically, we'd start with: Here's what the regulations require, here's where you are, DOE, and then

we'd start talking about what type of work had to be done to come into compliance, and how long that might take.

Frankly, there were a lot of good folks on the Hanford site who were starting to work on waste issues at that point, and these were typically the folks who were out in the field and who had to deal with these wastes every day. So they, at least, had knowledge of these waste streams and could explain, let's say, why they couldn't do something within a certain point in time—what the risks were, what had to happen first, things of that nature. The overlay on top all of these negotiations was the federal budget process year to year. That was always in the back of everybody's mind. We'd try to figure out, OK, if we can commit to this schedule, what's the price tag going to be, and when is the DOE going to need to request the funds to be in time to get the money to start doing the work. So, we'd have all these different factors that would play into the negotiations, at the end of which we would eventually come out with a schedule.

MM: Earlier you mentioned something about water laws. I wondered, since these discharges were going into the ground as you described, what kind of jurisdiction did the state have in terms of groundwater quality and/or potential water resource contamination? And were those issues part of the negotiations?

RS: The Tri-Party Agreement was not based on federal or state water law. The spotlight issue was whether or not the DOE had to comply with hazardous-waste requirements. Frankly, the extent of direct discharges on the Hanford site was not given as much focus as we really should have early on. What happened was that when we eventually went out for public comment with the draft Tri-Party Agreement, based on hazardous-waste law, in January of '89, the principal cry we heard back from the public was not about the hazardous-waste activities that were covered in the draft, but the fact that there wasn't anything on direct discharges, or wastewater discharges, and the public was right. That criticism was spearheaded largely by a group based in Spokane, HEAL, the Hanford Education Action League. Their spokespersons were the most vocal, and as a result, the state of Washington negotiated a much smaller scale agreement with the DOE that had the acronym LECO, Liquid Effluent Consent Order. So, there was another kind of Tri-Party Agreement. EPA concurred, but it was basically an agreement between the state of Washington and the DOE that covered the liquid effluents. It played an extremely large part in the early years, because it forced the DOE to recognize that their longstanding practice of direct discharges to cribs or by injection wells had to stop, and they subsequently started closing the spigot and, within not too many years, stopped all of those.

MM: How was it to be negotiating with people who had different agendas, and what kind of strategy did Ecology impose to keep these negotiations from becoming contentious?

RS: It was a tremendous amount of work on the part of everybody, all of our staff, Chris, folks from the DOE, Mike Lawrence. In terms of the EPA, it was primarily EPA Region 10 that ran point, but from the standpoint of the DOE and Ecology, our respective management was involved a lot also. Governor Gardner got involved now and then. DOE headquarters was deeply involved. They knew that this was going to carry a huge price tag associated with it; so they were naturally watching issues very carefully, and their legal staff was involved in legal battles and digging their heels in.

Even though the legal steps that the DOE took were pretty stringent, their lead negotiators on their side were some good folks, and there were three people in particular that helped us there. At the table there was a fellow by the name of Ron Izatt who was one of Mike Lawrence's assistant managers, and then he had a contractor, a guy by the name of Hank McGuire who worked for the Westinghouse Hanford Company. Then behind the scenes, Chris' counterpart was Mike Lawrence, manager of the Hanford site for the DOE. He was instrumental. He wasn't afraid to stick his neck out. When he reached agreement out here, he had to sell it back East, and he had a lot of selling to do. These were good, honest people with integrity, and they helped us a tremendous amount. Still, we were dealing with some tough issues, and we had attorneys for the three parties at the table all the times. The negotiations would get contentious. It certainly helped the state of Washington that we had the EPA there—Andy Boyd and Randy Smith made a tremendous pair. We used that synergy whenever we could, but there was certainly a commitment on the part of each of the three parties at the table, so we knew that there would be contention, and we'd just have to work through it. Periodically there would be yelling and screaming at the table, and sometimes we'd caucus, go have lunch and come back after. Despite the recognition of the difficulty of the issues, there was a commitment among the people at the table that we were going to stay there and do it. You couldn't saw the table in half with a chain saw; that wouldn't work.

MM: How would you describe the dynamic in the end? Did you come to respect each other, or how would you describe the situation?

RS: Certainly there were a lot of bonds and friendships forged over that 14-month period.

MM: Across the table?

RS: Sure, because you go through the fire, and each party winds up understanding to a much greater extent why the other parties are taking their particular position. You see things from different views, and that's the natural process of trying to reach an agreement.

MM: Were you ever concerned that having that kind of empathy could bring about compromise that you didn't want to have going on there?

RS: Yeah, sure. One of the principal issues we had, just as an example of that, was in determining what kind of legal format this agreement should take. I mean, when you heard the term, "Tri-Party Agreement," it sounded like three people shaking hands over a table. That's true, you wanted to do that, but everybody was well aware that these were to be drafted as fully enforceable agreements, so one of the biggest issues was whether or not this agreement, after it was negotiated, should be a consent decree, i.e., should it be filed in court. In that case, if there were any questions, you could go to the judge. The public took the hard line, i.e., you bet, it ought to be a consent decree, period. But the problem was, if it were going to be a consent decree, the issues that we would be negotiating would narrow down, because the DOE and the Department of Justice would come into play in that point and would be a lot tougher; so this agreement would be smaller in scope, and the battles would be a lot harder. So, the decision was made by Chris that even though this would be a fully enforceable agreement inasmuch as it would be an enforceable order on the RCRA side under the state's Hazardous Waste Management Act, and an enforceable federal facility compliance agreement under the Superfund or CERCLA statute, we would call it the Tri-Party Agreement, or TPA for short, and would shake hands over it. So, that was the

compromise that was reached, and it was based on the recognition that, first of all, we wanted to cover all the hazardous-waste compliance activities at Hanford. We didn't want to get thrown automatically into years of litigation in court; we wanted to reach an agreement. It wound up being an agreement, but if you read the fine print, it's fully enforceable.

MM: What impact did Westinghouse Hanford have on reaching an agreement?

RS: Westinghouse was the prime contractor, and their principal representative at the table was Hank McGuire. Fortunately, Hank was a great guy, honest, and a person you could negotiate with. You could talk to him, you could describe the problems; but of course, Hank also had the interest of Westinghouse at heart. I don't know what their contract was for, but it involved a lot of money.

MM: You mean in terms of cleanup or in terms of regular operations?

RS: Well, kind of a mix of both. At that point in time, everybody could start to see that the cleanup program was poised to take off. For example, the year that we completed the negotiation of the Tri-Party Agreement, if I remember correctly, the environmentally related activities at Hanford cost roughly $250 million to $280 million in '89. And since then, or subsequent to signature of the agreement, the budget took off, and now it's over $2 billion a year. Right there, you can see the impact that the Tri-Party Agreement has had—just from a fiscal standpoint in the state of Washington—is tremendous. So Westinghouse saw that. They could see that there was a golden goose there.

MM: Can you tell me how Hanford went from an operating facility to a cleanup site? What shut down? What took place?

RS: Well, at the point in time when we were negotiating the TPA, '88, the reprocessing facilities had largely been shut down. The N-reactor, one of the eight reactors, had been shut down for safety reason in '86 and put on "cold standby" in '88. The PUREX plant (plutonium/uranium extraction plant), the major reprocessing facility, had been shut down and then reopened and operated for a couple of years to take care of at least some of the residual N-reactor fuel that it had, but most of the reprocessing facilities had already been shut down. So, here we, and the DOE, and EPA, were, with all this waste in all these different facilities, trying to figure out, what in the devil do we do with it?

MM: So, you have 177 aging storage tanks, containing mostly liquid waste, right? How did that get there, and what did you do with it?

RS: When they reprocessed the irradiated fuel from these reactors, by and large what they did was to dissolve those fuel rods in a nitric acid bath, a hot nitric acid bath. So, they wound up with this highly radioactive nitric acid slurry. They would put that slurry into a fractionation column under pressure and heat that would allow them to pull off, at certain points, the individual isotopes, whether it wound up being plutonium or uranium. From a volumetric standpoint, far and away, the greatest volume wound up over on the waste side. They'd take the needed radioisotopes out, and that would go into the Nuclear Weapons Program. Then they wound up with this large volume of waste left over, whether it's in the tanks or all of the various landfills and such.

MM: So, the solution is to create this vitrification facility that will, if I understand correctly, turn this liquid slurry waste into glass logs?

RS: Yeah. You basically immobilize the radioactive constituents within a high-quality glass. So in the initial Tri-Party Agreement, we had a schedule for a vitrification facility. There had already been some planning taking shape to construct one at the Hanford site. The plans were pretty sketchy, but there was a schedule for a vitrification facility. It was actually supposed to be operational by end of '98. In fact, one of the last scheduled items negotiated before the three parties shook hands was a December '98 hot start date for the vitrification plant. That date was actually finally agreed to in Governor Gardner's office, with Chris on the phone with the administration. The date of the hot commissioning has since been changed to 2011. In terms of the TPA, the tanks and the vitrification facility has been kind of the shining star, the brightest, shining, most troublesome project over its history since we signed it.

MM: Some people have suggested—Randy Smith was one, but others have said this, too—that the specific timing of the negotiations had a lot to do with the eventual signing and the nature of the agreement itself. Do you feel that's true?

RS: Yes. Politically, during the winter of '88 and the beginning of '89, we had the national elections. It was, by and large, coincidental that the new administration's feet were off the ground. George Bush Sr. was elected, and we had a new secretary of energy, James Watkins. So, the election would have been in November, and the president would have been inaugurated in mid-January. Here was this big, inch-and-a-half agreement on their desks. It had been hammered out with just a tremendous amount of work, and they didn't read it. I'm speaking for them, but I'm sure they didn't read it. So we, coincidentally I think, caught the new administration with their feet off the ground. So, anyway, they signed it. There are a lot of DOE people that subsequently shook their head on that decision, but it was too late.

MM: What has transpired since the Tri-Party Agreement has been in place?

RS: First of all, the Tri-Party Agreement was put in place in May of '89. The Department of Ecology Nuclear Waste Program was then formed in September of '90. Not coincidentally, one of the things we negotiated in the TPA was that the federal government would pay all of the state's costs in implementing the agreement. The commitments in the TPA for cost recovery on the state's part are, point blank, very clear: You, DOE, pay all of our costs, period. So, we were able to form the program, and we started to staff up.

MM: Chris Gregoire named you as head of the newly formed Nuclear Waste Program?

RS: Yes. I was program manager for a number of years, and then I stepped aside and focused on policy issues, rather than the overall administration of the program. The program manager position subsequently went to Dru Butler and then Mike Wilson. The big issue we began focusing on was compliance with the schedules that had been hammered out as part of the TPA, periodically renegotiating schedules when it was warranted. The state has had tank waste and the acquisition of the vitrification facility in its forebrain over the years. We've been fortunate that Chris started out as director of the agency, and then was elected Attorney General, retaining her interest in Hanford. We've been fortunate that

we've had support from the Governor's Office throughout the various administrations. There have been, for example, a long litany of battles over the vitrification facility.

MM: What's the process for negotiating issues that crop up post-Tri-Party Agreement?

RS: There's a dispute process that is set up under the TPA. Under an RCRA-based project, the director of Ecology eventually has the authority to issue a Final Determination, which can be appealed to court. We have gradually arm-wrestled over various RCRA issues, with the tanks being the most notable one. At one point in time, we hammered out a separate, stand-alone, consent decree, forcing the DOE to pump out the remaining liquids in the tanks. At that time, approximately one new tank a year would begin to leak, a confirmed leak, and we eventually got to the point where we couldn't wait. We filed a Notice of Intent to sue the federal government, which brought DOE and the Department of Justice to the table. That was a big battle. There was also a big battle, for a number of years, over the spent fuels that were left over in the K basin, adjacent to the N-reactor. There's a huge volume of old nuclear fuels stored in pools of water, concrete pools, and those pools are in really bad shape, where the zirconium lining around the fuel has been breached. That has been one of the DOE's projects, which is on solid ground now, but there was a year or two when there was a big battle there. It involved all three parties, but we eventually gave the lead to EPA for that project. They've done an exemplary job on that, and the DOE and its contractors finally got their act together, so they're moving all the fuel out to the center of the reservation.

At that time, approximately one new tank a year would begin to leak, a confirmed leak, and we eventually got to the point where we couldn't wait. We filed a Notice of Intent to sue the federal government, which brought DOE and the Department of Justice to the table. That was a big battle.

I already noted liquid effluents—they eventually turned those off. We finally got to the point where solid hazardous wastes were no longer being disposed of in trenches, and so there have been a lot of battles over the groundwater monitoring. With the Superfund projects, where the reservation is divvied up into so-called operable units, each one wound up in a circular process, with a record of decision at the end of that process. So, there are individual battles fought on individual operable units—on an operable unit by operable unit basis.

There's been a tremendous amount of work done by some really good staff we've been blessed with over the years, but I don't want to overemphasize the period of time leading up to the Tri-Party Agreement. There's been a tremendous amount of work since that time to keep pushing, trying to make sure that the work gets done, and that it gets done well.

Making Milestones, Representing Washington State

An interview with Christine Gregoire
July 23, 2004


Gregoire

Position held at time of interview:

Attorney General for the State of Washington, 1993-2005

(Director of the Washington State Department of Ecology, 1988-1992)

Education:

- Honorary Doctor of Law, Gonzaga University, 1995
- Juris Doctorate, Gonzaga University, 1977
- Bachelor of Arts, University of Washington, 1969

Maria McLeod: When you were named director of Ecology in 1988, how significant were the issues of environmental problems at the Hanford Nuclear Reservation, and in terms of first order of business, where did Hanford fall on your list and why?

Christine Gregoire: You need a little bit of background about where I came from before I served as director of Ecology. Prior to that, I served as a deputy attorney general. As such, I supervised all the resource divisions, one of which was Ecology. So I had already been working on Hanford-related issues. Primarily my time was spent trying to get access to information because, back in that day and age, the Hanford site was under a shroud of secrecy. We had severe concerns about contamination, specifically whether or not there had been cleanup. At my office, we were trying to gain access to information. Ecology had been trying to do the same and was being shut down, frankly, at every turn. So, when I went out to Ecology as director, I already was familiar with some of the issues that we were facing at Hanford.

When you first become director of Ecology, you're overwhelmed with a number of issues; so I wasn't able to immediately delve into Hanford, but the constant question in the back of my mind was, how are we going to go after this? I began the process of making sure folks in the agency were aggressively trying to get as much information as possible, and I built that up for a while until I felt comfortable, where I could put what I thought was significant pressure on the Department of Energy (DOE) to either say no to us, continue this shroud of secrecy, or, as I was about to suggest to them, come to the table and see if we couldn't get it resolved short of litigation.

MM: When you say you were shut down at every turn, what form did that shutdown take?

CG: Denied freedom of information. Everything was secret; everything was classified. I think, at one point, they suggested they'd be willing to give somebody clearance, but then they couldn't say a word. We refused, throughout, to even remotely succumb to that as a means of doing business. So, again, we were very concerned about potential contamination over there, the Columbia River, things that people could see physically and ask, how can

this be right, and aren't there problems here? Little bits of the story were coming out, but they literally refused to come forward with information.

MM: It occurs to me, since you grew up in Washington state and Hanford was established as the site of nuclear production in 1943, that you probably recall some knowledge of it early on in your life. What, if you can remember, were those early impressions of the Hanford Nuclear Reservation?

CG: I don't think you grow up in Washington state without knowing about Hanford, but I think I'm probably like the rest of the population. When you're dealing with that high level of waste contamination, somehow or another you had confidence in the federal government that it was handling it properly. Surely they were keeping records; surely they were storing it properly. For the most part, we all, as citizens, thought they've got to be doing things right over there. Little did we appreciate and understand, in fact, what was going on.

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MM: So, regarding the Tri-Party Agreement (TPA), what do you think were the main issues that prompted your three-way negotiation between Ecology, whom you represented, EPA and the DOE?

CG: Remember, EPA has its hands tied behind its back. There's a policy, almost like an Executive Order in federal government, that does not allow sister agencies, both represented by the Department of Justice, to sue one another. So, relying on EPA was not an option here. We felt they had to be a participant in anything we were going to do, but we knew EPA could not be relied upon to enforce against the DOE, if it came to litigation, so, a good partner, always a good partner, but really a toothless tiger in terms of the ultimate threat. When we looked at state hazardous-waste and federal laws, specifically the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), my legal training combined with my position as director of Ecology led me to realize we had a legal position that was, in my estimation, undeniable to the DOE, but I didn't want to be overly aggressive by threatening a lawsuit. My clear preference was, let's see if folks won't be willing to sit down and negotiate, and see if we can't move forward with characterization and cleanup, just like we would do with any other CERCLA site—knowing that, if listed, Hanford had to be the largest CERCLA site in the country. If it were a Superfund site, then that would have been the jurisdiction of EPA. Hanford made the National Priorities List in November of 1989, but that was six months after the agreement had been signed. In this instance, there was another way to do business, because this was of such a unique status in the entire country. No other DOE site had done anything like this. Because of my legal training, I confronted it with the tools in

my toolbox to get them to the table and cultivate a willing negotiation and do something constructive, rather than end up in litigation for, literally, years.

Hanford previously had been listed as a possible site for the deep geologic repository for permanent storage of nuclear waste from sites around the country. That process had given us access to the site, access to see things and so on, which caused us to be even more concerned when that site was shut down in part because of groundwater. If it was shut down in part because of groundwater, you immediately had to ask, are there waste streams out there that could be contaminating the groundwater? Are the leaking tanks seeping into the groundwater? Most people assume it's a desert: it's dry, there's no groundwater. When they did the studies for the deep geologic repository, it showed otherwise. That raised our level of concern that they could have a problem with the groundwater.

MM: It seems you saw that the state could and did have some authority, but yet there was a good deal of resistance to that authority. Can you describe the forms of resistance to your cause and how you persuaded people to join your cause?

CG: My best description of it, setting the law aside, is the culture. Here is a site that had been run by the DOE, making the most secretive of ingredients for the bomb. No one got access. Everything was classified, etcetera, so along with that culture comes the attitude that we're not subject to state law, or state authority, or state enforcement. We are the federal government. We're dealing with national defense. So, we had to deal with that. We had to deal with a community, workers in the Tri-City area, who were actually very proud of their contribution to the defense of this country, and to shut down that mission was very hard for the community to accept, so there was resistance there. For example, the day after we signed the Tri-Party Agreement, the front page of the local newspaper ran something to the effect of, they weren't going to be anybody's garbage man. There was also the culture of those who wanted to oversee. Heart of America comes to mind, and other environmental groups, who wanted in and couldn't get in. Why weren't they a party to negotiations? Why weren't they being consulted? Why would we sit down and forge an agreement, why not

Submarine nuclear reactor core vessels in a Hanford Nuclear Reservation disposal trench.

sue? The thinking was if there were a lawsuit and oversight by the court, that would bring about a much greater result than if the state sat down and negotiated. So, when we went to the table, we had resistance on all fronts. Having said that, however, I believed that we were on firm ground with respect to the law. The mission for that community was over, and they were either going to turn to a new mission and a new future, or put up a fence and walk away. With regard to the stakeholders, I always find myself confronting the idea that it's better if you sue and get the courts to shut them down. I dealt with it in tobacco. The health care community wanted me to put them out of business. That wouldn't have done anybody any good. So, I'm a firm believer, if you don't have to go to litigation, you can probably get a whole lot more accomplished at the negotiation table. In retrospect, I have no question in my mind that was true in this instance.

MM: One of the issues that struck me when I was researching this project is what an intimidating entity the DOE must be, and one of the comments that has been made by many people is that you did such a good job of getting so much from the DOE. How did you feel, coming to that table, and what did you use as leverage to get the things that you did from the DOE?

CG: Timing is everything in negotiations, and by the time we signed the agreement, they had an interim head of the DOE. They were transitioning. I don't know what would have happened if we had a full-time head of the DOE at that point. We went back and spent hours and days with the Department of Justice. There wasn't any doubt in my mind they saw the legal footing we had. Having said all that, we also were very fortunate to work with Mike Lawrence, then-manager of the Hanford site, a very progressive thinker, an individual who saw that the mission was over. Hanford had a history that had nothing to do with him, things that had occurred during the height of Hanford's production. Nobody kept good records. The consequence of which was, we were left with a mess. They had a responsibility to do something about it. There's no question Mike Lawrence put his job on the line. Time was right, and he exhibited the right attitude, which was, we're not really interested in litigating. If we litigate, it will be a public circus. We will be beating up on you, day in, day out, eight hours a day in the courtroom, spending years of valuable time and valuable money when we could really be working in a partnership to get the job done over there, and so we came together with that common view.

MM: Can you talk to me just a little bit more about the negotiations, how you worked together on the issues and the dynamic that you fostered in order to do so?

CG: Here's my thinking on negotiations. You have to get yourself in the head of the other party. You have to understand what they need out of it and what's important to them, and you have to have a good feel for the substance of it. I had a confidante that still I don't think anybody knows about, who was very sophisticated, very knowledgeable, who, during the course of negotiations, would consult with me periodically. That allowed me to call foul if I didn't think we were getting the right information.

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We went through that for a while, and I think that built trust because they knew there wasn't going to be room in the negotiations to cloud issues. It was going to be straight, and it was going to be direct. Once we were able to get through that dance, which is always present in any negotiation, everybody knew where everybody's authority lay. Everybody knew what was at risk. Everybody had something to gain and something to lose. Then, frankly, we had the right personalities at the table. Again, EPA was a good and valuable partner, but they really didn't have very much in their tool chest by way of threats, and we weren't willing to club DOE with threats, so we had the right attitude. Yet, we were very firm about how much authority we actually had.

MM: How do you think you were perceived by the opposite side of the table? You said you were in *their* heads, so I thought I'd ask.

CG: Tenacious, bulldog, but fair, very firm, and doing my homework all the time.

MM: You mentioned you had a confidante. Can you tell me, all these years later, who that was?

CG: No, I don't know that I should. But I can say it was a person who had not only a good understanding of what was going on at Hanford, but who had an international understanding of vitrification and where it was working and so forth, as well as an understanding of the culture of the DOE in Washington, D.C. A very knowledgeable person.

MM: You mentioned vitrification, the process involving the transformation of the waste into glass logs for storage, which I'd like you to speak to. But first, I'd like you to address the milestones in general. And, as a way of getting to that, I'd like to ask you to respond to a quote from the Oregon Department of Energy published in a book titled, *Hanford: A Conversation about Nuclear Waste and Cleanup*. At one point, they commented that, "The original milestones in the Tri-Party Agreement were ambitious, too much so in many cases, and did not sufficiently reflect the complexity and challenges that exist at Hanford." How do you respond to that?

You've got to remember, it was the height of production. They literally would go out to a tank farm and look for which tank had space, irrespective of what was in it, and add another waste stream. There was no record keeping of what's in those, and, when you mixed them, what could result. So, that's a formidable problem.

CG: Fair. We knew that, because we didn't know what was in the tanks. They didn't know, and we didn't know. Nobody knew, because they had done such a terrible job of keeping the records and so forth. You've got to remember, it was the height of production. They literally would go out to a tank farm and look for which tank had space, irrespective of what was in it, and add another waste stream. There was no record keeping of what's in those, and, when you mixed them, what could result. So, that's a formidable problem. Having said that, I was determined we were going to have a milestone on everything we could think of. Roger Stanley did a terrific job of thinking of every potential that could be out there. The goal wasn't, put in a milestone and, by gum, they have to live by it. The goal was to have a milestone for everything that we could conceive of over there. In retrospect, we

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were right on the money. Nobody, in my estimation, could have come up with milestones that would have worked then and still be in existence today. And so, on faith, Mike Lawrence took me at my word when I said, look, you have my commitment that, as we move forward, I am willing to amend the milestones to address whatever technological problems, whatever problems you may have. The state has carried out its word, and there have been, as you well know, multiple changes to the Tri-Party Agreement. That's the partnership. That was the attitude that was established at that table. They took me at my word. They trusted me and allowed us to put all those milestones in there. We have an absolute obligation to live up to that. When they can prove to us that they can't accomplish something for safety reasons, or technological reasons, or what have you, then it's our job to amend the agreement so it's doable. So, the goal was to conceive of everything we could have at the time, but don't be wedded to the dates. That's not the be-all and the end-all. The be-all and the end-all is, have a milestone.

MM: Regarding the milestones, what were the specific accomplishments and issues you addressed about which you felt most triumphant, most successful?

CG: We had to stop the plumes of contamination—we had suspicions. I remember very distinctly, at the press conference in Washington, D.C., Mike was upset with me about two things that I said. We knew we had leakers. We knew we had some tanks that were leaking, and Mike didn't want to publicly say that this had led to some groundwater contamination, but in response to a press question that was asked of me, I said, "You know what, I think it's fundamental that if it can't go up, it's got to go down, and therefore I am very concerned that we've got groundwater contamination." The second thing he was disturbed about was my saying that ultimately cleanup means removing the tanks and not letting them sit *in situ*. He didn't want that either, but the fact of the matter was, I was absolutely convinced we were going to have a problem heading to the Columbia River if we weren't careful. So the issues were the K-basins and their adjacency, stopping the single-shell tanks from

leaking, trying to do groundwater monitoring so we could figure out if contaminated groundwater was heading to the Columbia. Because, if we hit the river, that's it for thousands of years. So, my preoccupation was with things that would ensure that we stopped any groundwater contamination from reaching the Columbia, and that we absolutely had the ultimate strategy of how we were actually going to clean up the site. That's the glassification; that's the vitrification plant, which was very controversial, very much debated at every juncture since. Our goal was not to allow them just to "stabilize" and walk away. The goal was to clean up, and that's why it's called the Cleanup Agreement. And cleanup meant they've got to remove that waste. They've got to process it, treat it and store it until, ultimately, we have a deep geologic repository. So at the outset, those were the two fundamental things: What's the long-term strategy to clean up, and how do we protect the Columbia?

MM: Do you feel that you've done that?

CG: No, we haven't accomplished that. I worry constantly, particularly now that we've had a Record of Decision for the Hanford Solid Waste Environmental Impact Statement in 2004 where they made the decision that the groundwater contamination is irreversible and irretrievable. The implication of the irreversible and irretrievable declaration may be that the United States does not intend to clean up the contaminated groundwater, nor otherwise address the significant damages to that natural resource, occasioned by more than 50 years of nuclear weapons production at Hanford. The state will not stand for this, and has challenged DOE's irreversible and irretrievable declaration in federal court.

MM: As you are speaking, one of the issues I keep thinking about is state's rights versus federal rights, and the importance of clarifying the definitions as well as understanding the interpretations of RCRA and CERCLA in this process. In terms of balance of power when you came to the table, how significant was it for you to determine and perhaps argue for a state's rights versus these federal rights?

CG: It was one of the key issues that we had to deal with at the outset. We did not want this to be named the largest Superfund site in the country and be given over to EPA, which is what that designation would have done, without agreement on how the state would be involved. We knew, ultimately, they were a toothless tiger in this whole arena. So our way in was RCRA, and through other state laws, and so on. The goal was to divide up responsibility and allow us to work in a partnership because of its uniqueness rather than simply declaring it the largest Superfund site and let that process take its course. Superfund never envisioned something this huge and complex. So, we gave some responsibilities over to the EPA, and we took responsibilities. Most importantly, we agreed not to say, this is a Superfund site, and that's how we're going to treat it. It was in everybody's best interest to work it out ourselves.

MM: I know that during the negotiations, you, like Roger, testified before Congress. Can you tell me about the nature of your congressional testimony and what you thought the state of Washington wanted and needed from the federal government in order for the negotiations to succeed?

CG: For the most part, it's always been a tension, and the tension is this: If we don't show we're making progress, Congress' interest in our delegation's ability to get the funding to clean it up will wane, and it will be a losing fight. So, we have worked the tension of, how do

we acknowledge the success that we've achieved, yet how do we hold their feet to the fire when they haven't done what they were supposed to do? That is a political tension that continues to this day.

The only time I have ever brought a suit, I was determined I was right, and I've won every time. I haven't brought it on those things that I think are questionable. So we've tried to be a good partner first and foremost, show that we can make progress to keep Congress willing to fund it, but at the same time, do the right thing, and hold their feet to the fire. While stakeholders are out there pushing in every direction, we're trying to walk in the middle of the road, maintaining our relationship with Congress and secure funding, maintaining our oversight and responsibility to make it get done.

MM: Did you feel supported by Congress, or did you feel that you had the job of persuading them regarding the state's need for funding?

CG: We've always felt we had to make the case that Washington state contributed to the national security, and it would be absolutely wrong for the federal government to walk away from its responsibilities, always maintaining that we weren't asking the DOE to do anything that we wouldn't ask the private sector to do if it were a CERCLA Superfund site. We were treating them perfectly fairly. So, we've always had the responsibility to convince Congress we're doing the right thing. The Department of Defense is an example. We went in to get the Department of Defense to meet its cleanup responsibilities, and we finally got a law passed that said they have to clean up just like anybody else. They're now trying to get that undone, to say, for national security, we have to be able to not do things. They cannot show one instance of an attorney general anywhere in this country bringing a suit to make that cleanup happen. That's the kind of thing we need to be able to say, show us. Show us how we have been unfair. Show us how we've been irrational or uncooperative. We're always maintaining our ability to be a good partner. That's the goal. That's the challenge every time we talk to Congress. So as long as we are a good partner, I think Congress will be supportive, but I swear, the day they think that we are not being cooperative or using good judgment will be the day that we really hurt the effort to clean up.

MM: Of what significance was the Tri-Party Agreement nationally?

We led the nation. No one else had had an agreement to clean up; now all DOE sites do.

CG: We led the nation. No one else had had an agreement to clean up; now all DOE sites do. We were the first in the nation to come up with it. Not long after it was signed, there was buyer's remorse by the DOE. They felt that they had given us too much; they had acknowledged too much authority, too much enforcement capability, and the document itself was an additional tool for enforcement, irrespective of federal law. They had severe buyer's remorse, and so none of the other agreements are as strong as the one at Hanford. I think it's important for Ecology to feel really good about itself for having been the first in the nation to do it because, if it had been No. 2 or No. 3, it wouldn't have the enforceable, very good agreement that it has because every agreement thereafter resulted in less and less. Again, it's all timing; it's all about the people at the table. Mike Lawrence was prepared to do the right thing despite the fact he put his job on the line. The attitude at EPA was, we're going to be a full partner, and we're going to make it happen. The expertise of

Jay Manning from the Attorney General's Office, the expertise of Roger Stanley on the technical side, it all came together. So timing is everything, but thank goodness Washington state was at the forefront. If it hadn't been, I don't think the state would have ended up with what it has.

MM: Being at the forefront, and lacking another model, how did you know how to go about this negotiation? In terms of technical knowledge, you mentioned you had a confidante, but regarding the negotiations themselves, especially the structure, how did you know how to enter into it?

CG: Typically when you go first, you always get the worst agreement. So, whoever comes second always gets more than what you have. That's just the nature of negotiations when you do something this big. I kept admonishing our team, telling them that we needed to understand this and be aggressive and get as much as possible, and to have a milestone on anything and everything we could, because the next person behind us is going to get something more and everybody in the state is going to say, well, how come you didn't get that? In the process of doing that, fortuitously for us, the reverse happened, such that we got more than anybody else ever got. So, I'm glad we had that attitude and understanding of agreements, realizing that the first person typically gets less and everybody else wants more. Because of that, we were more aggressive, which resulted in a more comprehensive agreement.

In terms of the technical piece of looking at the tanks, looking at the K-basins, I credit that to Roger. I just said, I need everything in here. Go out there, survey—let us make sure we understand. In addition, EPA had a good appreciation and said, we've got to cover everything. Let no stone go unturned without a milestone for it.

MM: How did your relationship with the DOE change over the course of negotiations? You said they'd been very secretive; they were very closed door, then they needed to make issues public to you. So how did that relationship evolve?

CG: I think it's probably no different from any other set of negotiations. First, we had to have a common vision of where we wanted to go, which added to the structure of what we wanted to do. Once we agreed on that common vision, then we could get down to the negotiations, but they were very controversial, very difficult. Mike and I really did the tough stuff. Roger did the day in, day out meat-and-potatoes. When we hit a roadblock, Mike and I came in and, after we would knock heads for a while, solve the issue. As in any set of negotiations, it turned when people began to see it could work, that we could actually reach an agreement and could actually succeed at this. That's when everyone became invested in making it happen, and the negotiations got better—better in terms of relationship, not in substance. We would fight tooth and nail, but it's always better for negotiations when you reach that kind of collegial trusting relationship. Because we came to trust each other, we came to appreciate that we could get the job done. There were a few times when we didn't have any hope that we could get it done, but we felt we had to try. We got over that mountain, and once we got over that mountain, we knew there wasn't anything we couldn't achieve. That was our attitude.

MM: Earlier on, you mentioned that in order to be successful, you do have to understand the people with whom you are negotiating. You have to, as you said, "be inside their heads." In coming to understand their standpoint and perspective, did you ever feel conflicted?

CG: No. As much as I came to respect and admire Mike Lawrence, this was about the DOE. I never lost sight of the fact that this was about the DOE cleaning up the Hanford Reservation, and I was going to be as tenacious and aggressive as I could to get that job done. So, despite the fact that I liked and respected Mike, this was all about getting a big federal agency, the DOE, to do its job. I never lost perspective of that.

MM: You had also mentioned that when tougher moments came up, you and Mike would meet to negotiate those issues yourselves. Can you give an example of any of those moments when your presence was necessary, and what issues you were grappling with at the time?

CG: Typically, we were grappling with the vitrification plant and characterization of the single-shell tanks. We knew they were leakers and what we wanted to do about them. I'm sure there were a whole lot more issues, but those two come to my mind as two huge hurdles that we struggled to get over.

MM: And what was the big resistance to creating a vitrification plant? Was it money, technology, what?

CG: It was the technology. They didn't want to go that route because they said, maybe there's something else, but I felt that we had to say, this is it. Now, if the technology came along, I'd be willing to look at it, but you can't leave that open-ended. Again, we couldn't lose sight of our fundamental goal—that the negotiation was about cleanup, not about storage. It's about treatment, but it's about cleanup, and it's not about storing it safely for a while until technology develops. My confidante understood vitrification in France and in England, and had visited there. This is not new technology. It's been done. I wasn't willing to buy this idea that, well, we don't know, and something new could come along. I said, well, fine. If something comes along, let us know, but in the meantime, vitrification is what we're going to move toward.

MM: What are your hopes for the future of the Hanford site?

CG: In regard to the immediate future, we can't keep redefining what constitutes high-level nuclear waste, changing the goal line, announcing that we're just going to give up on the groundwater, announcing that Hanford will be the site for all this waste. It's not about partisan politics. We had trouble with people in the Clinton administration. We just need to get this done. So, where do I want to go? I want a partnership where you don't have to have to threaten litigation and argue about things, just mutually agree that we have a common mission that is owed to the citizens of Washington state and this country, for that matter, to just get along and get it done. The ultimate goal, of course, is to bring that waste into the vitrification plant, glassify it and store it until we can have a deep geologic repository, finish up the K-basins and the other things that are going on over there. It has got to be cleaned up; let's get about the business of getting it cleaned up.

MM: Do you feel some of the original goals have been compromised?

CG: We're not going to compromise the original goals.

MM: You're not compromising, no. But I think, even all these years later, the DOE is making headlines because they're asking for certain things to be reclassified, or somehow changed, post Tri-Party Agreement, and I wonder why you believe this is occurring?

CG: Money. It's all about money. It's all about finding ways to take shortcuts, finding ways to reduce cost, but you know, you can't take shortcuts and reduce costs at the expense of cleanup. What we would never have envisioned in 1989 is that if we don't do it right over there, we'd leave ourselves vulnerable, in this day in age, to a terrorist attack. Thank goodness we got this going in 1989. This isn't about human health and safety alone. This is about protecting us against some untold terrorist attack. All of this, to me, has magnified the fact that we have to do it, and we have to do it right. I'm not going to spend a dollar I don't think should be spent. DOE has come a long way. They shoved pencils and papers around for far too many years over there and weren't getting the job done. Now they've taken on the attitude that they need to stop the shuffling around and get the job done. I am a big proponent of that attitude, but that doesn't mean you also say, and oh, by the way, let's do it on the cheap, or when something gets in our way, let's change the rules, let's redefine things, let's put up barriers. That's the wrong way to go and the wrong attitude, and Congress wouldn't believe that was the right way to go either.

Department of Energy Opens Its Doors

An interview with Mike Lawrence
July 28, 2004


Lawrence

Position held at time of interview:

Deputy Director for Campus Development and Associate Laboratory Director for Energy, Science and Technology, Pacific Northwest National Laboratory, operated since 1965 by the Battelle Memorial Institute for the Department of Energy

Former Hanford Site Manager for the Department of Energy, July 1984 to August 1990

Education:

- Bachelor of Science in Physics with Honors from the University of Maryland, 1969

Maria McLeod: When you were hired as Hanford site manager for the DOE in 1984, what was it about that position that appealed to you, and what was it about your background, interests and areas of expertise that made you an appealing candidate for the job?

Mike Lawrence: Well, prior to coming to Hanford, I was the acting director of the Office of Civilian Radioactive Waste Management for the DOE in Washington, D.C. The role of that office was to set up the procedures and the program to select, construct and operate a geologic repository for high-level nuclear waste disposal. The law that set up that office called for the director's position to be filled by a political appointee. Though I had quite a bit of exposure to the secretary of Energy and the highest levels of the DOE, I was not a political appointee. When they did find a political appointee to run that office, the secretary of Energy offered me the opportunity to come out to Hanford to be the DOE manager. I jumped at the opportunity because it was my belief then, and it's still my belief, that the job,

as it existed in those days, was absolutely one of the best jobs in U.S. government. As a government employee, I had the responsibility and the authority to operate a major production facility with high-end science and technology of great national/international importance. I relished the idea of doing that.

MM: When I was reading your background, I noticed that much of your work has been dedicated to issues of non-proliferation, safety, treatment of nuclear waste storage and transportation, both nationally and internationally, and I wondered if you were interested and invested in issues of cleanup and establishing compliance with these environmental regulations prior to assuming your position as Hanford site manager, or did that come as a result of working on the Tri-Party Agreement?

ML: Actually, I had been working for the Atomic Energy Commission (AEC) for about three years when, in 1972, I was given the responsibility within the Production Division of the AEC for all of our National Environmental Policy Act implementation, which meant I was responsible for any of the Environmental Impact Statements (EIS) that had to be prepared for AEC facilities associated with the production complex. So, 1972 was the first time I ever came to Hanford. I was responsible for EISs on an evaporator for high-level waste at the Hanford site, plus the remediation of a soil crib that was used for disposal of waste there. The following year I was responsible for EISs dealing with building new high-level waste tanks at the site. So, I've been involved in environmental issues going back to the early 1970s. Subsequent to that—during the Carter administration, from 1976 to 1980—I was involved in spent nuclear fuel storage and international nuclear nonproliferation activities that the president had initiated in order to reduce the risk of nuclear proliferation from nuclear energy.

MM: Correct me if I'm wrong, but wasn't the DOE, prior to 1989, essentially self-regulating, which would mean that Hanford was a self-regulated site; yet, it sounds as if there were procedures in place, which you participated in, to report upon the environmental impact of nuclear production at the site. Is that how things worked prior to the agreement?

ML: Well, the DOE was really an outgrowth of the Energy, Research and Development Administration which existed for only about two years, and part of that was the AEC, which was self-regulated; that was its legal basis, and the DOE had picked up on that legal basis. However, in the mid-1980s, a lawsuit was brought against the DOE known as LEAF versus Hodel. LEAF stands for the Legal Environmental Assistance Fund and Donald Hodel was, at that time, secretary of Energy under President Reagan. That case was regarding DOE's Oak Ridge, Tennessee site, and the ruling in that case was that the federal and state environmental laws did have jurisdiction over DOE facilities. That had never been ruled previously. So as a result of that court decision, the DOE had to find a way to bring its facilities into compliance with applicable state and federal environmental laws. Obviously, you had an almost 40-year history of operations, which were not regulated by those specific terms and conditions, and now they had to come into compliance. That doesn't happen overnight. So, a series of things had to take place in order to get into compliance, and that's what changed things. In other words, the AEC and DOE had their environmental rules/laws. They were set up in the federal rules and regulations, and we had to operate under those conditions. What happened in the mid-1980s, after I was named as the Hanford site manger, is that those were no longer the rules with which we needed to comply; we needed to comply with the state and federal regulations.

MM: At what point, during your early years as site manager, did you realize cleanup was going to take precedence over production?

ML: If I had to point to one specific event, it would be around the 1987 timeframe. Then-Secretary of Energy John Herrington made a widely reported statement that the United States was "awash in plutonium," meaning that we had more plutonium than we needed for our nuclear weapons deterrent. Since the purpose and the justification for the operation of Hanford's N-reactor, and for our production complex there, was the production of plutonium for national security, it was clear that was no longer going to be necessary.

MM: Can you tell me a little bit about the N-reactor and the production?

ML: Well, at that time, there was only one production reactor operating at Hanford, the N-reactor, which produced both plutonium for national defense, and it produced steam, which was then piped to a facility owned by what was then called the Washington Public Power Supply System. They ran a turbine, which generated 1,000 megawatts of power that was transmitted across the grid in the Pacific Northwest.

MM: Oh, so there were energy-producing reactors?

ML: There was an energy-producing reactor; however, the government—fine distinction—the government wasn't responsible for the energy production, but it sold the steam that enabled the energy to be produced. So it was known as the world's only dual-purpose reactor because it did produce steam for electricity as well as plutonium.

The other DOE reactor was the Fast Flux Test Facility, which was a demonstration reactor for a liquid metal fast breeder reactor, which was to have been built at Oak Ridge, Tennessee, known as the Clinch River Breeder Reactor. That program was terminated by Congress in the early 1980s, but the precursor reactor, our Fast Flux Test Facility, which could do a number of important research tools, was operating at the time.

MM: In 1988, the Hanford site made the EPA's National Priorities List. You talked about the facility not being in compliance with environmental laws. And it's true that before these laws changed, compliance wasn't required. But I wonder, prior to your being here and during those 40-some years when environmental issues were occurring here, why do you think people didn't keep better track of what was being discharged and where it was being discharged?

ML: Well, first of all, I think you have to put it all in perspective. The 1940s was a time of war; that's one perspective. Our concern about the environment in the 1950s—our concern for anything, sewage, trash—was vastly different than it is today, and I believe Hanford's concern for the environment and protection of the environmental workers during times of the '40s and '50s, was extraordinary. In hindsight, was it good enough? No. But it was extraordinary, especially considering that the Russians were developing this capability at the same time, and they took this waste and put it into lakes and put it out onto the open ground. Now, I'm not saying, look how bad they are and therefore we're good. The truth is, we built very expensive 1 million-gallon steel tanks, buried them underground and located them at the center of the Hanford site, as far from the river as we could, and as far above the water table as possible. But those tanks ended up leaking. We continued to use those tanks

instead of getting many more and better tanks. We put one type of waste on top of another and didn't keep all the records perhaps, but, in hindsight, that was still more environmental protection than other types of waste at that time. Where our actions did show a concern, it was found in hindsight not to be good enough. But to characterize those people as not caring about the environment is absolutely wrong.

MM: In my research on this issue, it seems in the way it's often reported, that the Department of Ecology was responsible for carrying the big stick, for coming in with the aid of the EPA and bringing the Hanford site into compliance. Yet, it seems there's another version, that the DOE had decided time had come as well, and that these two moments met. How would you describe it?

ML: There's a certain amount of truth on both sides. Certainly we had kept records going back to the earliest days, but what we did about it and how we operated and when we cleaned it up—those decisions were being made on our own. As a result of the court decision in the mid-1980s, the state and EPA now had jurisdiction and they could come in and say, you have to do this by this time and under these conditions. At first, there was DOE resistance to doing that. In part, because we just can't agree to do things because we don't have authority to spend the money. We have to ask Congress for the money. Consequently, even though we are the operator and are regulated, our ability to respond and comply is limited by the appropriations given to us by Congress.

In 1986, we started the process of doing an EIS for the management and the cleanup of all the defense wastes at the Hanford site, documenting what was here and coming up with options for dealing with it. That was something we were doing on our own, but then you overlay the fact that now that Department of Ecology and EPA could set the standards and the timeframe to come into compliance. There was truth, yes, we'd begun doing that work. So, there's truth to both sides, but it would incorrect to say we weren't going to do anything, or we weren't concerned about it. We were. It's just, as a regulator, they did carry the big stick of being able to say you have to do it by such and such time. The Tri-Party Agreement was so extremely important because we couldn't come into compliance instantaneously. All we could do is say, here's our plan to come into compliance over time and as money is made available. To work out what that plan was and the timing and the funding requirements was something that required the Department of Ecology, the EPA and DOE all to work together.

MM: During the time you were site manager, from 1984 to 1990, it seems that there was a big cultural shift in terms of making Hanford a more open facility and the knowledge of operations more public via the declassification of historical documents. What forces—political, historical, cultural—prompted that change in making it a more open facility?

ML: Upon coming to Hanford, I felt that people's impressions of what was occurring on the site were far worse than reality, and that we had to open up our site to outside scrutiny, to the degree we could, and consistent with security. Even though we definitely had to protect the facilities and the material from any misuse, theft, abuse, the information need only be classified for a certain amount of time and then could be made available, according to our rules and regulations. So we had to open up, and I'm proud of the fact that Hanford was the very first site to go back and take documents that were classified and go through the very

time-consuming and expensive process of declassifying them so the public could see what went on. We kept meticulous records going back to the 1940s: environmental records, operational records. Most, but not all, could be declassified. You have to recognize that was very expensive to do. I felt it was worth it and worked to let the public know what was happening here—more importantly, to learn what *hadn't* happened or didn't happen here as well.

MM: Did you have to call to DOE headquarters in D.C. and say, this is where we need to go in terms of a public relations front, and this is the kind of funding I need, these are the kind of people I need to hire? Was that something you had to negotiate and convince other people of?

ML: Not at that time, no. I had the authority to do it. Earlier I said, I felt the job, as it existed then, was the best job in government, and I said it had both the responsibility and the authority. I think times have changed and there is more centralized authority and probably today a person would have to call back to get approval.

There is a story about how a lot of this came about. In September of '85, on a Sunday, a front-page article in the *Spokesman-Review* featured a major story on down-winders of the Hanford site, written by Karen Dorn Steele. It pointed out that there were people living in the vicinity of Hanford who felt their health and the health of their neighbors and family members had been adversely affected by the Hanford operations in the past. As a result of that article, I scheduled a town meeting the following Thursday in the vicinity of where these people lived, held at the Edwin Markham Middle School in Eltopia, near Pasco, Washington. I wanted to have a dialogue with the people about our operations and our environmental records, and it was very clear at that meeting that there were a number of people with significant concerns and fears about adverse effect to their health. Quite frankly, it had never been brought to public light before, and Karen Dorn Steele deserves the credit. Upon talking to the people and trying to explain what we were doing then, in 1985, they expressed the opinion that they weren't so concerned about what we were doing then, but what happened in the past. I responded by saying, we have records about what happened in the past. We can go back, review them against our classification criteria, declassify, and make available as much of that as we can. We committed then and there, that night, on the spot, to go back and do that. Now, I didn't know how much it was going to cost at the time, and I probably should have given more thought to that, but it seemed to me, that based upon their fears and the concerns, they had a right to know, and the government had a responsibility to make it available and to be known. We did point out that classification reviews do take time and it's not as simple as taking a document out and giving it to them. It has to go through a very careful, painstaking review, but we would do it. Over the course of the next several months, we would let people know how it was coming along. On February 14, 1986, approximately five months after the public meeting, we released the initial 19,000 pages of documents with all the environmental records and history and releases of the Hanford site's first 10 to15 years of operation minus the few facts that were still determined to be classified, and more has been released since that time.

MM: You mentioned that it was your decision to make the Hanford operations, certainly its history, more open. As I've been conducting interviews and doing research for this project, a number of individuals have suggested that your part of the Tri-Party Agreement

negotiations was not without professional risks. If this is true, why were you willing to take such risks?

ML: I felt they were risks taken for the right reason, and I had the authority to do it. I knew that some people would disagree with those decisions, but I felt I could justify and defend those decisions, so I've absolutely no regrets. To those people who misunderstood my decisions, yes I took some risk, and particularly for the people who didn't have all the data, yes, there were some problems; consequently, when they did get all the facts, some of those problems went away.

MM: For people who may have misunderstood your decisions or your intentions, particularly those individuals within the DOE, what was the nature of their resistance, if there was resistance, to signing an agreement like this?

ML: One consequence is that huge amounts of money had to be spent for the cleanup. That would have had to happen anyway, but the Tri-Party Agreement gave the state and the regulators a greater say in what that would be, and I think some people resist giving up authority or power, or sharing authority or power. I think the federal governments gets its authority and power from the people, and if the people don't trust you, it's going to cost you a lot more in the long run. So, I think good government dictates that you try to open things up to people.

MM: What, besides declassifying documents, were some of your other efforts to open your operations up to the public?

ML: In 1986, we started the public involvement process of the Defense Waste Environmental Statement, looking at the wastes and what had to be done. Environmental impact statements, as such, include public meetings, typically held in federal auditoriums, libraries, in various locations, on weekdays in the evening. The only people who attend are people who have already made up their minds and feel very strongly one way or the other. Once in a while you get someone who's really interested in learning something, but those meetings are really not good forums for learning. As a result, we decided, let's go to shopping malls, set up a booth and a display, saying, this is what's happening, and we'd have people there who could answer questions so that average people who aren't locked into a position one way or another had the ability to get the information. Now, I recognize some people can claim that's propaganda, it's PR, but I would defend it by saying, go and look at the material being presented or discussed and see if you feel it's one-sided. If it is, then you're right, but we tried very hard for it to be very broad, and most of it was to say, here's the data, you go look at it and let us know what you think.

Another thing that we did—and we were the first DOE site to do so—is we established a citizen's forum. We had an organization go out and select 25 highly respected people from a broad spectrum who would serve on the Northwest Citizen's Forum on Defense Waste, that over a course of one to two years would hold meetings to learn about the issues involved in defense nuclear waste management at Hanford. We would provide them with any technical information they wanted, or we would pay for any technical expert they chose to come in so they could be educated and become as well versed as possible on the issues, then give us their opinion. A variation of this has been adopted at every DOE site. I'm a firm believer that if you give open-minded, intelligent people the same information you've got, you

should come up with similar views. If not, then you ought to reconsider what you want to do, and I felt that was a very useful process for us.

MM: In terms of changing Hanford's mission from production to cleanup, there were many different voices, and many different concerns you had to address, some of them asking for opposite actions. On one hand, you had, as you mentioned, the "down-winders," those who have a very real concern for their health, and then you had those whose whole lives had been dedicated to the production of plutonium for nuclear weaponry, people who were resistant to change. So, how did you make your way through that, personally and professionally?

ML: I'll deal with it professionally first. We are given a job to do by the American people through their elected representatives. Congress gives us a budget, and therefore a plan and program every year. When I came there, and prior to that time, Congress, in its collective wisdom representing the people said, we, the United States, need nuclear weapons for a deterrent and they must be produced. I personally thought about that, agreed and could live with that morally, personally and professionally. I said, that's what we're going to do, but we'll do it as safely as we can, as cost effectively as we can, and protect the environment. During the time I was there, the administration and Congress said, we have enough plutonium, we have enough nuclear weapons, and so they said, stop making them. I certainly could agree with that. So, yes, it does have an impact on jobs and the people, but that mission went away.

Then, in April of 1986, Chernobyl blew up. It just so happens that Chernobyl had superficial but real similarities to our N-reactor. I had every wire service, newspaper, network in the country here to see the N-reactor, because it was called the Chernobyl of the U.S.

Now, to give a slightly different view to this, not only did we release the initial 19,000 pages of declassified documents, but in other ways, 1986 was quite a year. For one, that January the Challenger blew up, putting in people's mind that, hey, where technology is concerned, things that we thought couldn't happen, do happen. Then, in April of 1986, Chernobyl blew up. It just so happens that Chernobyl had superficial but real similarities to our N-reactor. I had every wire service, newspaper, network in the country here to see the N-reactor, because it was called the Chernobyl of the U.S. There were people who wanted to shut down the N-reactor because it was unsafe. That I did not agree with, and that was something we didn't want to do. So, we resisted that action and we went to great lengths to allow people to come and hear what our safety systems were, to show the press, to show the public. I didn't agree with shutting it down then, but when the production of the plutonium mission went away, then it was time to shut it down, and that's what we did.

On a personal level, I felt that nuclear deterrence did have a role, and that producing plutonium for nuclear weapons, particularly and especially because it was used as deterrence, was a moral and acceptable thing to do. I surprised a number of people when I said that I felt that if the plutonium we produced here was ever actually used, we would have failed, because it would no longer be a deterrent, would it? It would be used

in retaliation. Not that retaliation is wrong, but the whole reason for making it was so nobody else would use them on us.

MM: So when you say you surprised some people, what were those reactions?

ML: I don't think people had given full consideration to what deterrence meant. Fortunately, I had the opportunity, back during the Carter administration, to serve on international nonproliferation activities. I recall one of my international colleagues, at one of those meetings, questioning whether the United States, at that time, had the resolve to retaliate if they heard the Russians had launched a nuclear attack. What that caused me to realize was that, unless your opposition, for lack of a better word, knows that without a doubt you would retaliate, then deterrence doesn't exist, and if deterrence doesn't exist, we're defenseless. So when I said, if we ever use this material, we will have failed, that was not the same as saying, if we don't have the resolve to use the material, we've failed. If we've ever used it, that means they have already launched. If we have to launch, we're going to a place none of us want to go to.

MM: In terms of the Tri-Party negotiations themselves, what do you recall as the sticking points, or points of difficulty?

ML: There was an issue regarding the relocation of the reactors that I felt we had to push back on. We had nine production reactors all located on the bank, so to speak, of the Columbia River, and the state wanted us to actually clean those up and actually move them to the center of the site away from the river at what would have been a relatively early stage in the Tri-Party Agreement, like year 10. To do this, you have to understand how huge a reactor is, how radioactive the graphite and some of the material could be. To move it would essentially require, first of all, extraordinary decontamination efforts. Then you would have to take those crawlers that they use at Cape Canaveral to move the Saturn Five rocket, dig a tunnel under the reactor block, lift this reactor block up on one of these movers, and take it the 15 miles to the center of the Hanford site. And I just felt that, because of the risk, the reactor wasn't going anywhere. You could clean it and seal it in place relatively inexpensively, but also with great amount of environmental protection, and I felt that was something that needed to be scheduled late in the Tri-Party Agreement, not early. Fortunately we did get that milestone pushed later into it.

After I left DOE as the manager, and my successor came in, they found a way of cocooning those reactors. That's taking place right now. What's really important to understand about the Tri-Party Agreement is that it was the best we could do with the information we had at the time, but it was always something that we knew would have to be modified as more information became available, and as the budgets became available to do things. There had to be an ongoing process to adjust milestones and deadlines as you got more information, as you made progress, because a plan that far in advance had to have a number of milestones that would be either impossible to meet or needed to be changed.

MM: Besides the issue of technology, narrowing down and negotiating within the framework of what is possible, how would you characterize the differing agendas at the negotiation table?

ML: Another way of looking at this is to say it is the responsibility of the Department of Ecology and EPA to protect the health and safety of the citizens and the environment.

That's their highest priority. What it costs is not their issue. There are people in the Department of Ecology and EPA who may feel, or did feel, that the risks and the hazards were greater than maybe we did, but they're the regulators; so they've got the final say. In the end, this negotiation was about people with truly different responsibilities and perspectives having to reach an agreement. One of the fantastic achievements of the Tri-Party Agreement is that these regulators and operators, with vastly different responsibilities and views of the risks, were able to come to an agreement that has lasted as long as it has. Now it has had to be modified. We always knew that was going to be the case.

But for us, more important than the money, there were a number of cleanup activities that would require people to get in there to do it. Those workers would receive a dose of radiation and a real risk as well. Who stands up for them and who protects them? That's our responsibility.

But for us, more important than the money, there were a number of cleanup activities that would require people to get in there to do it. Those workers would receive a dose of radiation and a real risk as well. Who stands up for them and who protects them? That's our responsibility. I'm not saying that EPA and Ecology weren't concerned about that, but clearly we could point out that either the workers would undergo a tremendous dose, or we'd have to get many more workers who go in, like for three minutes at a time, to do the cleanup, and that's impractical. So, the negotiations were an act of balancing risk and cost and impact. And the negotiators did a phenomenal job.

MM: In regard to the protocols of the negotiations themselves, it's my understanding that your role was similar to that of Robie Russell and Christine Gregoire, the other two signers. For example, you would be briefed, weekly or daily as necessity dictated, and that you'd step in when the situation dictated. I wonder, in regard to those moments you stepped in, what were your interactions like and what issues drew you to the table?

ML: In terms of negotiations for the DOE, we started with a person by the name of Jerry White, and subsequently we picked Ron Izatt, both of whom were my assistant managers, dealing with the issues day-to-day, and I would be briefed, as you mentioned. During the course of those negotiations, Chris Gregoire and I met on occasion.

I do recall clearly and specifically two very important and substantive meetings with Chris Gregoire, both of which were on Fridays in December of 1988. The first of those meetings was between Chris and her Ecology staff at the Department of Ecology headquarters in Lacey. The sticking point was the issue of taking our agreement before the court and a judge. The point we were trying to make with Department of Ecology was that DOE for Hanford and Richland operations office, which I managed, couldn't act for the government in that case. The Department of Justice represents the United States government. So, the Department of Justice does not readily enter into friendly settlements, to simply say, yes, we all agree and sign it. They fight. They fight to protect the U.S. taxpayer, to not give away rights of the U.S. federal government to the states, whatever the reason. They don't enter into easy, friendly settlements. The argument at that time was, look, if this does go before a judge and the court, the Department of Justice, a whole new agency, is going to come in.

They're going to resist, and it's going to take years before it's settled, and that could be years in which we're not getting funding for cleanup and we're not progressing. We offered, as an alternative, that we sign an agreement but not take it before a judge, and if at any time during the course of that agreement we didn't live up to it, then Ecology or EPA could take us to court. Totally properly, Chris Gregoire, representing the state, said, we want the additional legal bearing of a judge's acknowledgement of the agreement. I felt that, although I could certainly understand and appreciate it, it was outside of my control, so at the conclusion of that meeting I talked to her, and I said, can we discuss this with the governor, recognizing he was the ultimate authority, and she said, certainly we can talk. So, the following Friday, Chris Gregoire, Governor Booth Gardner, and I met in his office in Olympia to talk this over, and the same arguments were raised again. At the conclusion of that, or during that discussion, the governor turned to Chris, and clearly it was in Chris's hands, and he said, after listening several times to the potential delays that would occur if we went to court and the lack of ability to get things done, he directly asked her, could you live with an agreement without taking it to court? And I'm certain if she would have said no, we would have ended up in court, and it would have taken years, and cleanup would have been delayed. Fortunately she said, yes, sir, I can. Because of that, the three of us in that room reached an agreement that really let the Tri-Party Agreement go forward.

MM: Do you think, now, that a partnership between Ecology, EPA and DOE, is necessary in terms of regulating DOE nuclear sites?

ML: Well, I don't feel this is a partnership. They clearly are the regulators. That's the way it is, and that's the way it should be. But in terms of solving problems and working in a collaboration and constructively to solve problems, dealing with things that don't have a clear-cut solution, that type of relationship has to exist. I think there have been strains on the relationship, and I regret that. I think, in regard to the '80s, we all recognized that if we all stood firm and said, this is the way it's going to be and I'm not going to budge, nothing would have gotten done. Or it would have meant going to court and someone would have dictated what we should do, and it may not have borne any resemblance to what was possible.

MM: I want to read a quote from the Oregon Department of Energy as quoted in *Hanford: A Conversation about Nuclear Waste and Cleanup*, regarding the outcome of the Tri-Party Agreement. The Oregon Department of Energy, at one point, said, "The original milestones of the Tri-Party Agreement were ambitious, too much so in many cases, and does not sufficiently reflect the complexity and challenges that exist at Hanford." How do you respond to that?

We set ambitious goals and milestones for the cleanup based upon the information we had at the time, and, as we found out that we couldn't achieve those goals, we had to make changes.

ML: Given the time that they said it, I think that's pretty accurate, because those milestones were the best we could do at the time. I don't think anybody would have wanted us to set un-ambitious goals, so we set ambitious goals, but let's be realistic. If you come up to your regulator and say, I didn't meet it but I'm 80 percent of the way there, you're still probably pretty far along, and I can't disagree with that. I wouldn't say it that way, but I can't disagree.

MM: How would you say it?

ML: I would say, we set ambitious goals and milestones for the cleanup based upon the information we had at the time, and, as we found out that we couldn't achieve those goals, we had to make changes.

MM: Do you think the vitrification plant was one of those overly ambitious goals? What are your feelings about the vit plant now?

ML: I think the vitrification plant is essential. I feel that the vit plant is the single most important facility for the cleanup of the Hanford site, and the only thing I question about the vit plant deals with the rate for processing all of the waste. I know that the target date is 2028 to complete vitrification of Hanford high-level waste. Whether or not that can be met, I think you've got to try, but you'd better make sure the process works, and the facility works, before you invest the full amount to make sure those things are possible. I think that's in the works right now, but let's get on with it. Let's get it built. Let's get it operating.

MM: Christine Gregoire seems to remember that as one of the difficult parts of the negotiations. Do you recall that as being a difficult issue?

ML: That was always going to be the single most important part because the single most important or greatest risk is what's contained in the tanks, and to convert that into a glass system is most important.

MM: What were the difficult issues of that decision—technology, cost?

ML: Well, there were several, and you've hit upon the two key issues. Technology was critical in that the composition of the waste varies, unlike other DOE sites where one flow sheet was used and therefore the waste is fairly homogeneous. The waste at the Hanford site goes back to the Manhattan Project; different processes were used, so, to build one plant that will do it all is going to be very challenging. Now, they're trying to do that. They've got processes designed that will be built into the plant to do that, but that's going to be a real challenge, and the cost is very, very high. One of the things that needs to be left open, and unfortunately is a point of major contention today, is what constitutes an empty tank, and what can be left? What constitutes low-level versus high-level? Is there a deminimus level at which you say, let's backfill it and leave it? So, there's disagreement there, and I think if people could sit down and talk about it, truly, with an open mind and good will, we'd all be better off.

MM: Can you explain the processes involved in vitrification?

ML: What you do is turn the waste into glass logs in very thick stainless steel containers, and then you would store them on-site here, until a geologic repository is available. Then you ship it to a geologic repository where it is put far under ground in a specially engineered geologic facility where, the waste form itself, the package, to a small degree, will eventually go away, but most importantly the geologic formation provides the isolation for the environment, therefore protection.

MM: And the radioactivity never dissipates?

ML: The radioactivity does dissipate. As a matter of fact, quite a bit of it dissipates over the first 500 years, but there's always something there. For example, plutonium has a half life of 24,000 years. So there's always something there, and there are certain radionuclides like technetium. They're there for a very, very long time. The overall level of radioactivity goes down tremendously, but there's still toxicity there.

MM: And that site where those are to be buried, is that in Nevada?

ML: Correct.

MM: And was that a difficult decision to come to, deciding where those were going to be stored?

ML: That's a whole different program. That was the program I was responsible for before coming to Hanford. Yes, that is a very complicated issue. As a matter of fact, when I came to Hanford in 1984, Hanford was one of the candidate sites for a geologic repository, and in 1986 it was picked as one of the three finalists for a geologic repository. In fact, there were a number of people who felt the reason I came to Hanford as the manager was because we had been pre-selected, that Hanford was going to be the site. Consequently, in 1987, Congress changed the law and said, look at just one site, and that site will be Nevada, and by the way, Hanford and Texas, which were the second and third sites, we want you to terminate your program and have all the people off the job in 90 days. That was a challenge as well, but clearly that's what they decided to do.

I think the one thing that always has to be brought into mind is the fact that the federal government can't just go off and do what they want. Congress has to give them the money to do it. Consequently, if Congress doesn't give us the money to do it and the regulator says, you're in contempt, or you're in violation because you haven't done what we've told you to do, well, who's at fault there?

MM: How did the Hanford Tri-Party Agreement impact the manner in which Hanford Nuclear Reservation was monitored and regulated, post 1989, after the agreement had been signed?

ML: It actually set up a process where the EPA and Department of Ecology sort of—I don't want to say shared—but they sort of picked the areas that they would follow, and I think it's facilitated and improved and made much more efficient the process for the regulation of the Hanford site. EPA and Ecology have offices there. They have access to the Hanford site. Prior to the Tri-Party Agreement, that wasn't the case, and so I think it's made the regulation of the Hanford site far better because of the Tri-Party Agreement.

MM: Do you believe it's in some ways easier to have an outside regulator, versus self-regulation?

ML: You're always in a terribly difficult position if you're both setting the rules and then following them, because how do you ever justify and say the rules you set are right? So in the long run, I think it's better to have an outside regulator. Does it make your life any easier? If you follow the rules, it does. If you try to break the rules or get around the rules, it doesn't. I don't know about

you, but I don't do a whole lot of negotiating if I get stopped by a policeman. They make the rules and you have to do what they say. To follow up on that point though, I think the one thing that always has to be brought into mind is the fact that the federal government can't just go off and do what they want. Congress has to give them the money to do it. Consequently, if Congress doesn't give us the money to do it and the regulator says, you're in contempt, or you're in violation because you haven't done what we've told you to do, well, who's at fault there? Now, I understand if DOE hasn't asked for the money, and therefore Congress doesn't give it to them, you can say, DOE, you're at fault. But if DOE has asked for it and Congress hasn't given it, well, what do you do? Who do you punish? That's something that I don't think a lot of people give full consideration, whereas, an industrial polluter does have its own bank account. If they violate, they pay.

MM: In terms of states' rights and jurisdiction over federal rights and jurisdiction, why couldn't the EPA be responsible for regulating the DOE? Why does the state agency need to come in?

ML: Because they have the authority under the laws of the land. As we all know, there are state rights. You have certain authorities and responsibilities to the state. The protection of the health and welfare of the citizens of the state of Washington, by and large, rests with the state of Washington; so they have every right and responsibility to monitor that. Very early on, EPA recognized that the hardest issues were going to be between the state and DOE. They more or less said, OK, we're part of this, but if you two can work things out, I'm sure we can make things work out as well. That was a very intelligent, very wise move on their part. That's not to say they rolled over. They didn't. They stuck to their guns as well, but they recognized the tougher problems were going to be between the state of Washington and DOE.

MM: You talked about the difficulty of setting your own rules, and having to follow your own rules, and how that becomes complicated or difficult. Along those lines, is the EPA's role as a regulator somewhat complicated because the EPA is a federal sister agency to the DOE, and therefore it makes the role of regulating, on their part, a bit more difficult?

ML: I didn't feel that way because they always were there to do their role as the EPA, but there are those who would question it because we're all part of the federal government, and there are people today, for instance, who question how strict are they in enforcement, or are they promulgating tough standards for pollution? The feeling is that an administration is either pro-environment or anti-environment. So, we are faced with that dilemma as well. My experience with the professionals at the EPA has been that they're very passionate about their job, and they do their job to the best of their ability.

MM: Different individuals, both inside and outside of Ecology have commented that much of the success of this negotiation had to do with the success of your professional relationship with Christine Gregoire, your mutual admiration of each other. I've been told that there is a story related to the signing of the Tri-Party Agreement that reflects this relationship, something about a broom? Would you mind sharing that story with me?

ML: The signing was quite an affair. It was held in the Grand Ballroom at the Richland Red Lion Inn. There were 300 people there. Chris Gregoire, Robie Russell and I were up on a podium along with the table where we would do the signing. Governor Gardner was there, a man for whom I have tremendous respect. So it was more than a press conference.

It was actually a celebration, and, when you think about it, for the signing of a cleanup agreement to be a celebration is kind of extraordinary. And we had a cake, and we had champagne.

Well, I have this terrible habit of always going for the cheap joke and always trying to inject humor. Fortunately, Christine and I had a very good relationship, which exists today. Anyway, in planning for this event, I recalled that normally people give out pens at a formal document signing. Well, that's kind of trite. But we're the federal government; we don't have any money to spend, we're cheap. I thought, it's a cleanup agreement, why not give out brooms to the signers? So, we went to the local grocery store and bought three brooms and had this cheap little plastic sticker, "Hanford Agreement, May 15, 1989," put on them. Then I had them wrapped in brown paper and put up behind the podium.

MM: Old fashioned straw brooms, I imagine?

ML: Straw brooms, you've got it. So, after the signing, we got up and there was applause, and we were shaking hands. We were miked somehow, and I said, "Now, to commemorate this, we felt that this was so special and important that pens just weren't sufficient. So, here is a memento of the signing agreement." So, I handed them out. And when Chris and Robie opened them up, Chris said, "Oh, a broom." And without really giving it a lot of thought, I jokingly said to her, as she's standing there in front of 300 people, "You can even use it to return to Olympia on." And the collective air in the room left as everyone, *ohhhh*, everyone inhaled. There was dead silence until, thank God, she broke out laughing. Then the room broke out laughing, but it was obviously and certainly meant in jest, because I have huge respect for her. She got a big kick out of it, and to this day, when we see each other at events, she will comment about the broom.

MM: Thanks for sharing that story. I have one last question. That is, for the Department of Ecology, I believe the Tri-Party Agreement is often characterized as a kind of victory. My question for you is, does that mean, for the DOE, the Tri-Party Agreement was a kind of defeat?

ML: No. For some within the DOE, would they feel it's a defeat? For some, yes, I think they would, but I think it was a victory. I know the people here at the site who worked on it felt it was a victory. They were very proud of the agreement that was reached here, and so I think were the people who were close to it, including people in Washington, D.C., who were responsible for our environmental health and safety operations. They all felt it was a very good thing. As a matter of fact, there were those at the department, who, when they first heard about it were very upset, thinking, we will have to spend so much money to clean up the site. However, when they saw the good will and the public reaction as a result of it—that spirit it generated—they then embraced it. That's, I think, indicative. So we certainly don't view it as a defeat. We had to come into compliance. This provided a reasonable approach for doing it and a process for doing it. I think anybody who is knowledgeable and spends time looking at it would have to view it as a real success story.

At the Table for EPA

An interview with Randy Smith
August 26, 2004


Smith

Position held at time of interview:

Retired, Environmental Protection Agency, Region 10 Office, 1980-2004

Formerly Director of the Hazardous Waste Division, EPA, Region 10, 1992-1995; Director of the Environmental Cleanup Office, 1995-98; Director for the Office of Water, 1998-2004

Education:

- PhD in Public Policy, Kennedy School of Government, Harvard University, 1981

Maria McLeod: As the former deputy director of the Hazardous Waste Division for the Environmental Protection Agency (EPA) Region 10, what was your involvement in the Tri-Party Agreement?

Randy Smith: I was the leader of the EPA's negotiating team. Earlier, I had been assigned general responsibility for overseeing the federal facility cleanup work, under the Resource Conservation and Recovery Act (RCRA) and Superfund within our division. In early 1986, I was asked to take a look at the Hanford problems specifically, and that role then evolved, as EPA and Ecology both become more active in trying to get a handle on problems at Hanford. That evolved into full-time work on the Tri-Party Agreement negotiations beginning in December of 1987.

MM: What were the precipitating events when, in 1986, you were asked to become involved with Hanford?

RS: I'll answer that first from an EPA Region 10 standpoint. In 1986, the Superfund cleanup program was only a little over 5 years old, and we were beginning to get a handle on some of the major contaminated site problems in the Northwest and Alaska. We were beginning to have some experience with military contamination cleanups, and we had already begun to get involved in the oversight of radioactive waste contamination at the Idaho Nuclear Engineering Laboratory (INEL) in Idaho Falls. We had negotiated an RCRA cleanup order for corrective action at INEL over in Idaho, so we were a little familiar with the contamination over there, and we had some sense that Hanford was a mess.

Our legal authorities over federal facilities were somewhat unclear in 1985-86, but we were starting to be aggressive about taking a look at all the federal facility contamination problems, military and Department of Energy (DOE), and that was the setting in which my boss said, Randy, why don't you spend some time looking at Hanford and give us a sense of what we ought to be doing.

MM: When you say that your authority was a little bit unclear, 1985-1986, what do you mean?

RS: There were three different regulatory questions or issues that needed to be settled. First, RCRA was a relatively new law at the time. RCRA had been passed in 1976, and the basic RCRA regulations had just come into effect in 1980. The cleanup part of RCRA had just been established by some amendments in 1984. So, we were only a year or two into the idea that potentially those companies who managed hazardous waste would have to clean up their contamination. One of the issues that was somewhat unclear initially was the question of mixed waste. Mixed waste is waste that's both radioactive and hazardous. Most earlier environmental laws that had been passed—such as the Clean Air Act or the Clean Water Act—had essentially exempted radioactive wastes. These acts clearly carved out wastes subject to the Atomic Energy Act that would be regulated by the Atomic Energy Commission or its successor, the Nuclear Regulatory Commission. So the whole nuclear establishment, not just federal agencies, but also power companies with nuclear reactors, were very used to being independent and having only one regulator, and that was the Federal Nuclear Regulatory Commission, or, in the case of DOE, they called themselves their own regulators.

Congress started to create laws that didn't write in an automatic exemption for the Atomic Energy Act, and, when they wrote RCRA they did not exempt radioactive wastes or DOE in quite the same way. When Congress passed CERCLA, or the Superfund Act, in December of 1980, they explicitly included radiation as a component that was covered. The legal landscape started to change, but the language in those laws was not explicit.

So, it took some fights to establish just what this new landscape would be like, and that took place on two fronts. Under RCRA there was a court case in Tennessee, *LEAF v. Hodel*, in which a federal court held that DOE's facilities were subject to RCRA and not exempt. That court case, which took place in 1985, was a tremor in the landscape that caused people to begin to wonder, OK, what's the role of the environmental regulators on these federal nuclear facilities?

MM: And the significance of *LEAF v. Hodel* is that the DOE lost that case, correct?

RS: That's correct. It was the first holding by a court that said that DOE could not simply take the Atomic Energy Act, wave it at people and say, we are a secret atomic installation and everyone else keep out; we will take care of all of our own problems. That's what they had been able to do for 40 years prior to that time.

The other thing that happened then was that the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) / Superfund included radiation as a hazardous substance, meaning that radioactive contamination was subject to the Superfund law. But CERCLA was silent about what EPA's authority was with respect to federal agencies. The 1980 law didn't say that federal agencies were excluded, and they didn't say they weren't excluded. We had begun—we, EPA, Region 10—had begun to be pretty aggressive, first with the Army at Fort Lewis, and the Air Force at McChord, and with the Navy. We could see that there was contamination on these military bases. We'd started to get pretty aggressive with them about their responsibility, but our exact legal authority was a little unclear. Then, in 1986, Congress amended CERCLA with something called Superfund Amendments and Reauthorization Act, or SARA. In that, Congress wrote in a new section for federal facilities under Superfund: Section 120 of the Act. That laid out the whole procedure for federal agencies to follow. In Region 10, the way we looked at that was to say, well, we've been

telling all you guys that you were subject to CERCLA, and now Congress has ratified it and given us a very clear process. That development helped set the scene for Hanford. So, we moved quite quickly in 1986 and '87 to list a very large number of federal facilities in the Northwest and Alaska on Superfund National Priorities List. That's what I mean by the fact that the authorities had been cloudy; they were starting to change. As they became less clouded, it was clear that something needed to be done, and the tools were there to do it, but there still was no precedent. There were no documents anywhere that said just what one could do to exert this regulatory authority. In other words, there were a lot of questions that were very much up in the air at the time we started thinking about the Tri-Party Agreement negotiations.

MM: What were the most significant questions you were trying to answer?

RS: One question we had was, what is EPA's role, and what is the state's role? Most federal environmental laws set out a process where the federal authority was delegated to the state. RCRA is a law like that, as is the Clean Air Act, the Clean Water Act. But other federal environmental laws do not set up a process for delegation of authority to states, and CERCLA, or Superfund, is an example of that. There's no process for delegating EPA's Superfund responsibility to the state. So, we had an interesting situation in which CERCLA clearly covered radiation as a contaminant, clearly established a process, after the SARA amendment, for federal facilities to be put on the Superfund National Priorities List and established a process for a cleanup agreement, but did not build in any kind of state role. RCRA had a very strong state role and there were clear court findings in Tennessee that DOE was subject to state authority under RCRA for both its hazardous and mixed waste. In regard to either CERCLA or RCRA—the questions DOE would have are, OK, regulator, what do you think we should do, and how can we write that down in a document that looks clear both to you and to us. How will it be enforced? What happens if we don't meet it? What happens if we don't have enough money? They'd have those questions for EPA under CERCLA, and they'd have similar questions for the state under RCRA; then there were these overlap questions: OK, what if EPA and the state don't agree? What if a question is subject to both CERCLA and RCRA, how does that issue get resolved? Those were the kind of regulatory structure questions we had that the Tri-Party Agreement needed to address.

There are two other kinds of big questions, which can be referred to as the scope and schedule. Scope: What is the work that needs to be done? How specifically can it be spelled out at this point? Over what time period are you trying to commit DOE to actions? In regard to schedule: Is this a 12-month agreement or a 20-year agreement? What's the content of that and what are the deadlines? All of those questions had to be worked out for a facility as complicated as Hanford.

MM: Before we go on to what was negotiated, can you tell me about the structure of the negotiations? I'd like to hear not only about the hierarchy, but also the administrative structure of those negotiations. How do you describe what transpired during those 14 months the agreement was negotiated?

RS: A way to think of these negotiations is to realize that you have three organizations here: DOE, Ecology and EPA. Each of these agencies is made up of lots of people at different levels of the organizations and with different roles. So, each organization needs to set up a negotiating team and delegate the responsibility to develop the documents, as well

as the reporting channels, and who's to be consulted. It's very complex. In EPA's case we had primarily a three-person negotiating team. I was the leader—the policy and management guy. We had an attorney, Andy Boyd, and we had a technical leader, Paul Day. The other organizations set up similar, but not identical, negotiating teams.

Then, within each organization, the negotiators had to set up processes to work with others inside their own organizations who were critical to the negotiations from the point of getting started to getting an agreement. For EPA, my boss, Chuck Findley, had given me the general assignment to do this. Once we got started, Chuck stepped out of the way and said, basically, I want you to run this. I kept Chuck informed, and I regularly briefed Robie Russell, who was our regional administrator and who ultimately signed the agreement for Region 10, but we also had a number of people in EPA headquarters who were intimately involved. We had various senior managers from EPA headquarters, and then we also had Department of Justice people involved in reviewing what was being done. They were not involved in the negotiations themselves, but because this was the first document of its kind anywhere in the country, it was clear that it was going to set very important precedents for all the kinds of questions that I talked about earlier. It was clear the Tri-Party Agreement would be looked at as a precedent by other states and other facilities. Another EPA region was having some problem with a DOE facility, and there were people involved there who would say to us in Region 10, you can't do that, or you've got to do it this way. I know that, within the state and the DOE, our counterparts at the negotiating table had similarly complicated lives. I know that both Mike Lawrence and Christine Gregoire did need to get personally involved at a few points when negotiations threatened to break down. I also know that there were lots of other people in DOE and Ecology and the state, including the Governor's Office, who were briefed and needed to be OK with our decisions.

It was clear the Tri-Party Agreement would be looked at as a precedent by other states and other facilities. Another EPA region was having some problem with a DOE facility, and there were people involved there who would say to us in Region 10, you can't do that, or you've got to do it this way. I know that, within the state and the DOE, our counterparts at the negotiating table had similarly complicated lives.

In early January of 1989, when we finally had a breakthrough day, when we realized that we were going to be able to have a draft agreement that could go out for review and that we had achieved that breakthrough, a bunch of us were sitting down after some exhausting negotiations and having a beer. I remember taking a napkin and writing the names of people that had been directly involved in face-to-face, across-the-table negotiations with each other over one issue or another, and I got over 50 names on that napkin from all three sides.

MM: Why did this negotiation include the consultation and work of so many people?

RS: This negotiation was an enormous production. It launched work that ultimately affected 15,000 to 20,000 employees over in the Tri-Cities, caused the establishment of

EPA offices and Ecology offices dedicated only to the Hanford cleanup, and it caused the spending of literally billions of dollars of work, and was and still is viewed as a precedent-setting agreement. That kind of negotiation should get reviewed by a lot of people. This is not the kind of thing that you delegate to a dozen people to whom you say, go off in a room and tell us all what you're going to do. It's too big a deal. Take the technical work, for example. Roger Stanley, for Ecology, had a team of people assisting him. Paul Day and others for EPA and their counterparts from DOE, and the Westinghouse Hanford Company had similar teams. They'd go out and spend days or weeks at a time working out an awful lot of technical details. Just what information existed about contaminated soil? How could you take the 560 square miles of Hanford and break it down into bite-sized pieces of work? What was a good way to scope that work? What would a reasonable schedule be? I was not in the room for any of that work, and yet that work involved literally dozens of people pouring over technical data, arguing about what was reliable data, arguing about what the best way to stage a technical investigation would be, and how many years it would take to do this. All of those things took serious arm wrestling.

MM: Were you and others aware of the historical and national significance of the work you were doing? And, with that in mind, what was this experience like for you, professionally?

RS: It was a bit of a twist for me because, before I came to work at EPA, I had worked at Battelle's Seattle office in the late '70s. So I had worked on nuclear waste disposal issues, not as a scientist, but as a social scientist, a public policy management type. I had made a number of trips over to Hanford and had gone to Idaho Falls and a number of the other nuclear sites in the late '70s. So I had some knowledge of the general problems of nuclear waste disposal and had known something about what a mess it was. When I left Battelle, and I went to EPA, I thought I was joining an agency that didn't have anything to do with nuclear issues, that I was leaving those issues in my past. In fact, when Chuck Findley asked me to take a look at Hanford, and said he thought we had to do something, my initial reaction, because of my prior work, included an awareness of the strong division between the Atomic Energy Act and the other environmental laws. I thought, we're David and that's Goliath, and I don't even know if you're giving me a slingshot.

Needless to say, I was a little skeptical that we could be effective. I maybe understood more about the problems we'd face because of my earlier work. I think that what we had going for us, in part, was the fact that we—we, being both EPA and Ecology—had several years under our belts of taking on new and difficult problems and beginning to get a handle on them, wrestling with the Asarco smelter in Tacoma, wrestling with the Commencement Bay cleanup, the Bunker Hill Mining site in Northern Idaho, and a number of others. Each agency had a number of cases where we were encountering 50 to 100 years of poor practices, and it was a very daunting prospect to get involved. People would say, well, you can't possibly expect us to do anything and we challenge your authority; yet, we'd begun to have some success. So, we felt like a bit of a David with some successes.

MM: At least you knew what Goliath looked like.

RS: But Hanford was a Goliath all its own. Hanford was a Goliath in a different league. We, the negotiators, did some thinking about how to try to manage the dynamics of the negotiation and we realized that, although we knew we were going to have all these dozens of people involved, we had to have some ability for a small group of people to face each

other across the table and really understand each other, to be able to communicate clearly, and negotiate carefully and thoughtfully, and not let personalities or miscommunication or other things get in the way. As a result, one of the things that we did fairly early on is to say that we really should not meet in any of the home offices of any of the organizations because there would be too many distractions and too many hangers-on who could potentially say, I'm going to be in that room today. We thought we could make more progress if we were outside of our home office areas, so we did a lot of the negotiating in Yakima and Spokane. I can't remember all the different places that we went to, but we tried to isolate ourselves during the serious negotiation sessions. That created a kind of a rhythm to the negotiations because we would set up maybe four weeks between two-day negotiating sessions, and then we'd go someplace and we'd really work on issues. In the meantime, there would be, in between these sessions, lots of communication back and forth. There would be these separate subtask groups, working on individual issues through conference calls or face-to-face meetings. For the primary negotiators, the entire year of 1988 included a rhythm of intense face-to-face sessions, followed by going back and thinking about what we heard, communicating back and forth, and getting back together again to try to make another step forward.

MM: How did you go about negotiating what role the EPA would play and what role Ecology would play in terms of enforcement and the monitoring of the Hanford site?

RS: In the time leading up to the negotiations, both Ecology and EPA had been working on trying to get a handle on Hanford issues. First of all, almost everything that EPA does, we do with an awareness of what's being done by the state. At EPA Region 10, we're working intimately with Idaho, Oregon, Washington and Alaska. Nothing significant goes on that you're not talking about all the time to your counterparts to make sure that you're not tripping over each other, at least to make sure there are no surprises. Often we're building teams of people. It's common behavior for any significant environmental issue for EPA and Ecology and the state of Washington to be either dividing up work and say, OK, you're going to do that, we'll stay out of the way, or else saying, no, we both have a role here. Hanford wasn't unusual. I remember, though, that Roger Stanley and I spent the week between Christmas and New Year's in 1987, trying to think through how we should approach these upcoming negotiations. That was the time when the issues and the structure began to crystallize, and we began to feel like, OK, we're off and running.

MM: Prior to the Tri-Party Agreement what kind of authority did EPA have in terms of conducting inspections at the Hanford site? And, if not through inspections, how was the federal government made aware of the DOE's waste disposal practices at the site?

RS: DOE had been doing a lot of monitoring at Hanford and there was a lot of information available about contamination. I mentioned I had worked for Battelle. Well, I remember interviewing people in the late '70s about waste practices and trying to get a handle on it. There was, at one point in the mid-'70s, a large environmental impact statement (EIS) on waste management for the DOE complex nationwide. So, there was a lot known. There were no surprises. People knew all about the single-shell tanks and the fact that there were high-level wastes in them, and the fact that those tanks were vulnerable to leaks, that they had a design life of 25 years and they were well past that. The fact that there might have been leaks was not a secret.

But prior to the late '80s, there was no real third-party independent oversight of DOE practices because DOE had a long history of being part of the Cold War. The folks who built Hanford were the folks who built one of the two bombs that was dropped on Japan—the folks who, through the '50s and '60s, had all been engaged in the production of nuclear weapons and the Cold War with Russia. So, there was intense secrecy. Everyone over there was very used to the idea that the only people who got information were people who had a need to know. If Roger Stanley or EPA or anybody else showed up, knocked and said, we have a right to come in and see your operation, they'd say, I'm sorry, you don't understand. Frankly, that behavior was not that different from any other industry being confronted with environmental regulation for the first time. The first time that you show up at a steel mill that's never had an inspector and say, we have a right to go through your facility, the property owners might say, I'm sorry, where's your warrant? So, this process of having new environmental laws come into play, bringing new industry under those laws is, ultimately, a process of educating everybody—inspectors, the guy at the plant gate, the plant managers—as to what this process is going to look like. Initially, you get a lot of resistance as an environmental agency and you sort of have to work through that. That was this moment—'84 '85, '86, '87. This was the time when things were changing, and Roger was the first guy at the plant gate. He was the bulldog. Roger had a great deal to do with focusing Ecology and getting attention on these problems. He was just an enormously persistent individual.

MM: Can you explain how it was decided who had final jurisdiction and authority over what issues and problems at the Hanford site?

RS: Well, that was one of the most delicate questions in the negotiations. One of the risks was that if we didn't figure out issues of authority beforehand, the DOE would use, as an excuse for inaction, what they would call the dueling regulators issue. They could say, well, I can't agree to that with you because those guys over there might say something different. That issue needed to get worked on at two different levels—technical and institutional. At a

Ecology staff sampling Columbia River sediment for radioactivity, along the Columbia River on the Hanford Nuclear Reservation.

technical level, for example, it's often possible to get an agreement as to how many monitoring wells a year would be an adequate number to ask DOE to install in order to have a better groundwater-monitoring network. That was a key issue in the negotiation—not the biggest, but it was pretty critical.

Then there was an institutional issue, which you could see as bureaucracies dueling with each other. That's best described as, who's going to get the work and who's in charge here? I mean that separately from the question of the legal calls over jurisdiction. The institutional issue is one that comes up all the time in EPA/Ecology relationships, and it's one that managers at EPA and Ecology have, by and large, gotten a lot of experience in trying to work out. Institutionally, it's just absolutely the worst use of environmental regulators to have them arguing with each other. It's much better, from a management standpoint, to think of the Ecology staff and the EPA staff as a collectively capable group of environmental regulators. You need to have some trust and confidence in each other that both organizations have competent people. Because neither agency were really doing this work at Hanford, we had to try to think, from a management standpoint, what would be an appropriate way for EPA to utilize its capacity to help oversee things at Hanford, and what would be an appropriate way for Ecology to do that? It was clear that this was a big enough problem and that there was room for both organizations. It didn't need to get turned into an all-out head-butting war between the two. The fact that CERCLA authority was not delegated to, or delegable to, the Department of Ecology was an important principle. It helped. And the fact that the Department of Ecology had already been officially delegated responsibility for RCRA cleanup, that helped. We began with those facts as organizing principles. We then said, OK, of the contamination at Hanford, which contamination clearly fits into the CERCLA laws, and which contamination was most clearly appropriately part of the RCRA laws. Then we looked at the issues where there was overlap, asking ourselves, how do we split this work up? So, both EPA and Ecology were, from fairly early on, willing to approach this as a division of labor.

After we sorted through the division of labor, that left jurisdiction. That was your question to begin with, but the reason I started the way I did is because, if you start with jurisdiction, it's an abstract question that lawyers will argue about, but no one will ever be able to answer it until a court sorts it out. If you start with that question, you're stalemated; you're stuck. So, we didn't start with jurisdiction, but we had to wind up there. The structure of the Tri-Party Agreement included five parts, and each of those parts was defined in a certain way. The agreement was structured as a whole, but certain parts of the agreement, read collectively, would constitute a compliance order under state hazardous-waste law, and other parts of the agreement, read collectively, would constitute a CERCLA federal facility agreement under CERCLA.

Part One was an introductory section that applied to both, and I think that Part Two was the RCRA section under which Ecology's authorities were spelled out and where DOE's obligations to Ecology under state hazardous waste and RCRA law were spelled out. Part Three was a CERCLA section, which spelled out DOE's obligations under CERCLA and established that EPA was the decision-maker for activities falling under Part Three. Part Four was a section that described how disputes between EPA and Ecology would be resolved. Then Part Five was kind of a catch-all wrap-up section that applied to both.

MM: In terms of jurisdiction and state versus federal responsibilities and authority, we use the terms RCRA in regard to state compliance with hazardous-waste law and CERCLA for federal facility compliance. Can you give me some details as to what it means to comply, what is the essence of those laws?

RS: CERCLA, or Superfund, is basically a law that applies to cleaning up contamination that has already occurred and, therefore, is subject to CERCLA jurisdiction. You just have to show that a hazardous substance has been released, or is threatening to be released. This is not the exact legal definition, but it's a pretty broad test. So, the authorities under CERCLA are authorized to tell the responsible party, hey, you've got to investigate this and you've got to clean it up. And so the Action Plan, or Part Three of the Agreement under CERCLA for Hanford, involved investigating the contamination that had already gotten out into the soils, and sampling that, making schedules for doing initial studies to determine the extent of that contamination, as well as schedules for making decisions about what to do to clean it up, and commitment to implement those cleanup decisions once they were made. Cleanup decisions are made in Records of Decisions, or RODs, under CERCLA.

A typical Hanford problem would be that, over the years from this liquid waste drain field, contamination has gotten into all of this soil area. So, somebody needed to get out there, sample the soil, figure out how bad it was, what was in it, determine what the options are for cleaning it up, make the decision as to how to clean it up, and then go clean it up. That's typical CERCLA work.

RCRA's primary focus, initially, was to prescribe practices that currently operating facilities needed to use to manage hazardous wastes properly. So, compliance with RCRA could include things like proper storage of wastes in the right kind of building, with the right kind of safety precautions, and the right kind of monitoring. Monitoring wells around hazardous-waste facilities are another key issue in RCRA. So, there are a lot of operational practices needed to be compliant with RCRA that Hanford did not have, so those needed to be established.

MM: What about prevention, is that part of RCRA?

RS: Right, absolutely. All of these requirements apply if someone is managing hazardous wastes in certain quantities. They don't apply to radiation. RCRA doesn't cover radiation. When people talk about the hazardous constituent of mixed wastes, what they mean is that if someone has, let's say a solvent, and that solvent is a hazardous chemical, and that solvent was used to clean a radioactive drum, then that solvent is both toxic because of the chemicals, and it also has picked up radiation. RCRA does not, itself, cover the radiation, but it does allow the regulator, in this case Ecology, to say now, here's what you're going to do with that solvent. So, Hanford is a place where you have, oh, I don't know, maybe 14,000 employees at the time that we started. Think of those 14,000 employees doing all kinds of industrial activities, many of which involve hazardous chemicals or hazardous metals. All of those activities have to be done right. So, it became necessary for the regulator, the Department of Ecology, to establish a framework for holding the Department of Energy accountable for doing the right thing with all of their hazardous wastes. That's a very clear Part Two kind of activity under the Tri-Party Agreement.

Interestingly enough, my perception—I say my perception because I never really knew this for a fact—my perception was that the contractor, Westinghouse Hanford, who employed

most of the employees at the Hanford, was very nervous about its liability for compliance with RCRA. At Oak Ridge, the court decision clearly said there was no exemption under the Atomic Energy Act. There was some pretty aggressive enforcement going on around the country, including some criminal cases being brought against companies who knowingly violated RCRA. If you're in the Westinghouse Hanford Company, and you've got 14,000 employees, and you're suddenly subject to this law with these jillion requirements, you'd have a lot of interest in seeing obligations spelled out more clearly and precisely so that, for one, you could tell your employees what to do. When it's all left vague, you're worried that an inspector is going to come along and say, you guys knew this was a violation, and you didn't do anything, and that's criminal. So, I think that nervousness and fear of liability was a big motivator for causing DOE to feel it was in its interest to enter into a compliance agreement with Ecology. Although they were being forced to do things that they hadn't previously done, I think they actually needed to obtain some kind of compliance agreement, and I think that helped the negotiation.

MM: Was the Westinghouse Hanford Company at the table and officially taking part in the negotiations?

RS: Yes. They were represented by Hank McGuire, and they were an official part of the DOE negotiating team. They were not negotiating as a separate entity, meaning that DOE didn't sit there and say, here's what we want, and Westinghouse would say, well, we can't buy that. They were not a fourth signer, but it was very clear that they were the eyes, the ears, the arms, the legs and almost everything else at Hanford. Westinghouse had all the knowledge and the responsibilities for carrying out RCRA compliance responsibilities and cleaning up the waste, and they needed to be at the table. What I told you about my perception about their interests, is nothing they ever said, but I could observe the negotiations, and as I considered what their interests were, I felt it was very likely that Westinghouse themselves really needed this agreement. There was some speculation, if the question were completely left up in the air as to what was legal and what wasn't, whether a big corporation like Westinghouse would be willing to be hung out there and be exposed to all the vulnerabilities.

MM: Prior to the May 1989 signing of the Tri-Party Agreement, a draft agreement was put out for public comment in January of that same year. In what ways did the timing of these negotiations impact the results, and had these negotiations taken place at a different time, the year before, a year later, do you think that the signing would have occurred?

RS: January 15, 1989, was the date the draft agreement was signed, six days before the inauguration of the new president. That's a time in Washington, D.C., when the old administration is on its way out. On January 15, 1989, many people had packed their bags and were gone, and the new administration was literally not yet there. It takes quite a while for the new political leadership at DOE to be in and be confirmed. That was a terrifically useful time for these negotiations to conclude. I thought that Mike Lawrence had exerted a lot of leadership and was willing to push his organization to take on the challenge of compliance with RCRA and CERCLA. There was a tremendous amount of resistance down within his organization in Richland. Then there was a huge amount of inertia among the career DOE folks in D.C., who said, no, don't do this, we still have questions. That particular time of early January was a time when there were low-level—well, pretty high-level/low-level people in D.C., career people—who would have said, no, don't do this,

or could have thought of a hundred reasons why it shouldn't be signed. Mike saw the value in it and was willing, in ways that were invisible to me, to push through that resistance. It's hard to know what would have happened, but it's possible that either a year earlier or year later, the negotiations might have been stalemated and just dragged on for a long, long time.

MM: Were you ever concerned when you were negotiating that it would be stalemated, or that it would have to go to court, that the decisions would be made in court?

RS: This thing looked like it was stalemated 40 times. I mean, this thing was extremely difficult to get through. Courts are slow and courts are uncertain and courts sometimes just toss problems back to the agencies and say, here, you didn't do it right, but it's back to you, fix it. Thinking that going to court is a neat option overstates how much clarity you can get out of a court. No judge is going to want to take on the job of managing the Hanford cleanup. The most that a judge would do would be to take on one particular issue, resolve it, and then send it back to the parties. So much of the work of the Tri-Party Agreement is work that the agencies were going to have to do with each other regardless—figure out the scope of work, figure out a schedule, move aggressively on cleanup, get the facility into compliance with RCRA. Going to court would have provided more clarity over certain legal issues, but whether those issues would have been resolved in a way that would have been more or less favorable is something that nobody knew. I think, if all sides have some incentive to work out a work plan that looked like it had content that was acceptable, then setting the legal uncertainties aside and not trying to fight those in court was smart strategy for both sides.

MM: During the negotiations, what did you think were the most difficult moments?

RS: In January, we were exhausted. We had been working on this thing for over a year and felt like we'd done this phenomenal job. We, Ecology and EPA as the regulators, had insisted on public review. DOE wasn't used to that, but we said, oh no, we never do anything like this without public comment. There wasn't any process in the law set out for public review of an agreement like this, but we at EPA and Ecology both insisted on it, and we were going to hold public hearings on it and so forth. We thought, we'll get cheers. Instead, we got hammered, particularly in Seattle. It was one of the three or four toughest public meetings that I can remember in my career. The citizenry, probably 200 people or more in the Seattle Center, the activists were very skeptical. They really wanted court oversight. They were skeptical that DOE would really do anything, and the fact that EPA and Ecology had agreed, rather than seeing us as forcing DOE to agree to terms that we wanted, was viewed as, you guys must have caved because those guys will never do anything unless they're threatened with jail. So, there were a lot of questions about enforcement. There were a lot of questions like, what are you going to do if Congress doesn't give them the money? How are you going to force Congress to appropriate the money? We had to say, no, the Constitution gives Congress the power to appropriate money; no one forces them to do that, which wasn't an answer that people wanted to hear.

There was one really substantive issue they focused on, and that was that there were continued discharges of contaminated liquids going into the ground, and that we had to stop those. This was an issue that was really forced by the activist groups. They were right. We should have included that in the scope of the original agreement. So, there was an

intense amount of work in February, March and April to try to bring the liquid discharges into the agreement. There were some milestones established for stopping these discharges, and the discharges were then completely stopped within a small number of years. A very aggressive system for treating liquids was set up, and that was all directly the result of public comment on the agreement. So, the agreement in May was, in that one respect, substantively different and better than the agreement in January, and that was very important. That was a tough issue in a way because we had overlooked it. It actually was an issue that once it became clear that it should have been in there, we were able to get DOE to agree to some major additional commitments in millions of dollars, and it was environmentally very important.

MM: And why do you think it was it overlooked?

RS: Trying to tackle this huge amount of work there, you just couldn't get your arms around everything. You just couldn't. We focused a lot on groundwater monitoring. We focused a lot on soils. We didn't focus as much on liquid discharges. We focused on tanks. The waste in the tanks, the single-shell and the double-shell tanks at Hanford, is the nastiest, most long-lived, most intensive radioactive waste. It's the largest potential future problem out there. Ecology, Roger Stanley in particular, made getting a handle on those tank wastes a top priority. Interestingly, of all the issues out there, that was the one issue that both CERCLA and RCRA had the least handle on. It's not clear that it was a CERCLA issue, because a lot of that contamination hasn't gotten out yet. It was not clear that it's an RCRA problem because we were talking about plutonium and other intensely long-lived and extremely nasty radionuclides. RCRA didn't cover that, so who would have leverage on it? Well, nobody. It came down to Ecology saying that tank waste was the No. 1 problem at Hanford, and we weren't signing this unless they committed to scheduling.

We focused on tanks. The waste in the tanks, the single-shell and the double-shell tanks at Hanford, is the nastiest, most long-lived, most intensive radioactive waste. It's the largest potential future problem out there.

So, this notion of major milestones came out. That was an Ecology idea, and those major milestones were commitments to specific actions, and that was the single most difficult area to negotiate. It was an issue that EPA supported Ecology on, but it was Ecology that was on lead on that issue. We were cheering all the way, but that was the issue where the biggest impasse developed. Ultimately Chris Gregoire and Mike Lawrence had to talk, and that was the make-or-break moment for the whole Tri-Party Agreement.

MM: And did that lead to the design of the vitrification plant?

RS: Absolutely. It started with Roger saying things like, I want a commitment to sample tanks, because no one knew what was in them. Roger started very methodically, working to get more information out, and they'd say, well, you can't sample them, it's too risky. You've got to have a schedule for sampling, and they'd say, we could never get the stuff out anyway. Finally, Roger said, I want you to try one tank. I want a commitment to clean the wastes out of one tank, and if you show it can't be done, we'll learn something, but if you show it can be done, then we'll know what to do with the other tanks. So, that big problem of tanks

became a set of negotiations over different steps, each of which was a building block that eventually has led to this enormous vitrification plant.

MM: What do you think is the greatest success of the negotiations? What marks it as a success for you?

RS: Well, a tremendous amount of cleanup work has been done out there. All the areas, all the reactors, the north part of the site along the river, the 300 area near the south part of the river are greatly improved in compliance, lots of progress on tanks. There's a tremendous amount of work to be done. I remember at that tough Seattle meeting, somebody poking their finger at me and practically hollering, can you guarantee me that the waste at Hanford will be all cleaned up? I said, "No. There's no way I can do that. I think my children and my grandchildren will still be working on this problem, but I can guarantee you, we can make it a lot better than it is right now." And that's what I think the Tri-Party Agreement did. It kicked off a major effort to make things at Hanford a lot better than they were. The problems are there. Our children or our grandchildren may still be working on them. At least we got started.

Chapter Eleven - Clearing the Air

Clean air doesn't come easily. From acid rain to asthma, to smoke so dense it causes traffic accidents, Washington state's history of air pollution problems has been met with the fervor of environmental advocates, the discerning eye of the Department of Ecology's "smoke readers" and the legal expertise of the agency's "rule writers." Air pollution sources addressed by Ecology and local air authorities have run the gamut from toxic industrial emissions to agricultural burning and motor vehicle exhaust. Interviewees for this chapter tell the story of how Ecology and others have responded to air pollution problems, both from a regulatory standpoint and through cooperative and creative means, representing various forms of pollution control, prevention, and adherence to the Clean Air Act. Examples include the statewide school bus retrofit program designed to reduce children's exposure to diesel emissions, as well as the Save Our Summers group, an Eastern Washington citizens' clean air group, whose response to grass seed burning set in motion the beginning of the end for a health-threatening, 30-year-old agricultural practice.

Chapter Advisor: Alan Newman, Senior Air Quality Engineer, Washington State Department of Ecology

Interviewer: Maria McLeod

When the Sky was Falling, Air Pollution's Early Years

An interview with Alan Newman
August 18, 2004


Newman

Position held at time of interview:

Senior Air Quality Engineer, Washington State Department of Ecology, since 2001

(Employed by Ecology since 1975)

Education:

- Bachelor of Science in Civil Engineering, University of Washington, 1975

Maria McLeod: Can you explain to me, in terms of jurisdiction, how local air authorities work in relation to Ecology? And what is the history regarding their establishment?

Al Newman: It actually relates to the history of the Washington state Air Pollution Control Law and the philosophy that local government control is better than state government control. The '67 Clean Air Act established the local air authorities, and in '69, the law was changed in some fairly important ways to increase the ability of the local air agencies to enforce and develop rules.

MM: So local governments are responsible for monitoring their own air quality in certain counties?

AN: Under state law, a number of local air agencies were required to form, and then there were others that were voluntarily agglomerated. Those that voluntarily formed an active air authority did so in part to keep the state fingers out of their local politics and businesses.

MM: Were businesses advocating for local control versus state control?

AN: Business had power, but allowing for, or even assuring, local air pollution control was more an issue of local politics. It was the counties themselves in conjunction with the legislators from those counties that wanted to protect their local businesses from what they perceived could become a heavy-handed state bureaucracy, which could regulate their large employers out of business. The philosophy of government was, at that time, to push regulation of business to the lowest possible level of government interference, and Washington was doing it with the local air agencies, far beyond what existed in some older state laws governing environmental protection, for example the state Clean Water Act. This approach significantly differs from what eventually became the cooperative federalism, or joint management concept that the EPA's laws are built on.

MM: Do local air authorities receive state funding from the Legislature or Ecology?

AN: No. They have a separate funding mechanism in the Clean Air law, which is different from the state. The local authorities can charge what is known as a per capita fee to the counties and cities in their jurisdiction to cover all or part of their costs. I don't know if Ecology ever passed state money to the local authorities, though. Until fairly recently, Ecology did give the local authorities part of the annual grant we receive from EPA.

MM: What is the relationship of the local air authorities to Ecology?

AN: The state has responsibility to manage overall air quality in the state and to establish minimum state regulatory requirements. The philosophy is that the state can set overall policy direction and basic program requirements, but since local government is more responsive to the needs of the people, the local authorities are allowed to be different, but not less restrictive, than the state. The local agencies were developed as the implementers of the Air Pollution Control Program, with the ability to write their own regulations as necessary.

The law allows Ecology to take jurisdiction over certain types of industry away from the jurisdiction of the local authorities. While there were originally four different types of industries that Ecology took jurisdiction over, only three of the industries that were pulled away from the local air agencies remain under state control: aluminum smelters, kraft pulp mills, and sulfite pulp mills. Local agencies still cover industries like the thermo-mechanical pulp mills—those are the mills that use the process of grinding the woods against each other. So, not all pulp mills are under Ecology jurisdiction; some of them are still local agency. The fourth type of industry that Ecology originally took authority over was oil refineries. The local authorities demonstrated that they could adequately regulate these sources, so Ecology gave them back to the local authorities to regulate.

MM: The jurisdictional issue sounds complicated. It is complicated?

AN: It looks complicated from the outside, but it's just a stumbling block until you understand how all the parts fit together. The legislation required certain counties to

become air authorities, and one of the things the law mandated was that King, Pierce, and Snohomish counties all have to be under one air agency. It also defined a population threshold, above which a county had to have an active local air agency. Such a county couldn't back out of it, it couldn't choose to not join—the agencies were required by law. The population threshold ended up requiring Yakima and Spokane counties to have local air authorities. Everybody else was encouraged to institute an active local air authority and, if possible, to join into multi-county jurisdictions. Today we have seven local air authorities, three of which are single-county authorities. Those seven used to be nine local authorities with four single-county authorities.

MM: What are the jurisdictions we have today?

AN: Today we have Northwest Air Authority, Puget Sound Clean Air Agency, the Olympic Regional Clean Air Agency, the Southwest Washington Clean Air Agency. Then there's the Yakima Regional Clean Air Agency, the Benton County Clean Air Authority and the Spokane County Clean Air Authority. At one time in the past, Grant and Douglas Counties both had local air authorities, and the Benton County Authority is the remainder of the Tri-County Air Authority, which was Benton, Franklin, and Walla Walla counties.

MM: OK, I'm still grappling to understand this. Are you saying that Ecology's relationship to these counties is similar to the EPA's relationship to Ecology?

AN: No. Everybody gets the impression that the relationship of EPA to Ecology was farmer to chicken, and the relationship of Ecology to the local air authorities was chicken to chicks. It's more like EPA's the farmer and Ecology and the local agencies are all hens—no chicks, they're not even related necessarily.

MM: Different breeds of hens.

AN: Conceivably. There's not a hierarchical structure within Washington state, except that within the context of the local agency rules—if they have their own rules—have to be as stringent, or more stringent, than Ecology's rules.

MM: Since we're talking about the early days here, when these local air authorities were being formed, even before Ecology, I wanted to take this opportunity to ask you, what were the main problems in terms of air pollution? Also, would you offer a sense of what the prominent industries where at that time?

AN: In the '60s, as it was all through the '70s, Seattle was a one-business town—Boeing. There were other types of heavy industry operations in town—two concrete manufacturers. There was a steel mill, just like there is today, but it was basically Boeing and not much else. The rest of the state was lumber oriented—lumber and agriculture, very heavily. You couldn't drive anyplace without seeing wigwam burners, forest fires, or slash fires. The big thing that we were dealing with was smoke, flying rocks, big particulate, arid smoke from slash fires and wigwams and other operations impacting cities, towns and roads.

MM: What's a wigwam burner and where were the flying rocks coming from?

AN: Actually, in Canada they call them beehive burners—conical burner is another name. Take an old-style conical colander, round top, like a cone, and stick it upside down. That's what a wigwam burner looks like.

Sawmill emissions from boilers (left) and "teepee" waste burners, 1971.

MM: I take it it's not an especially efficient or environmentally friendly form of a burner, right?

AN: It's between half a step and one step better than an open pile. It did have the advantage—and there are still some existing in Washington, unfortunately—but they did have the advantage that you don't have the wind blowing the cinders around. The dome on the top is a half-inch screen, capable of filtering out all of the particulate that could blow and cause a fire. They also had the ability to keep the wind from affecting the fire pile itself. They burned wood waste from lumber mills. There were lots and lots and lots of little lumber mills. Each wigwam burner made dense smoke and produced cinders. The dense smoke would blow across roads, making trucks, road signs and traffic accidents almost invisible. The cinders would fly around and land in people's yards. Would you like to hang out your wet, white laundry on a clothesline only to come back when it's dry to find it covered with black and brown specks from cinders and sawdust that didn't hang around in the wigwam burner long enough to get burnt?

MM: You also mentioned flying rocks?

AN: Flying rocks, flying mud balls, they'd come from things like asphalt concrete plants with wet scrubbers, which you couldn't even use today on a new asphalt concrete plant. These scrubbers sprayed water into a tank, usually the exhaust stack, where the dusty exhaust gas from the asphalt concrete plant came in contact with the water to remove the dust.

MM: So, what is a wet scrubber and why is it no longer used?

AN: There are many designs of wet scrubbers. The most common ones that I ran into in the mid- and late-'70s were to control particulates. The ones on asphalt concrete plants were steel tanks with an inlet tangential to the tank so that it made a circular flow through the tank. It was filled with spray bars, nozzles that sprayed water downward into the tank because the air flow was usually going upward. It would just saturate everything, but usually

the air velocity was such that if you stood next to it, you'd get covered with mud balls, little mud drops, because you'd have droplets of mud come out, but there were huge flows of muddy water that would come out the bottom, too. These low-efficiency units have been replaced with more efficient particulate-control devices like bag houses, electrostatic precipitators, and venture scrubbers. The low efficiency ones have also been found to not be a BACT level of particulate control.

MM: So, at this point in your career, you were doing Air Quality work in Yakima?

AN: Yes. Actually, when I started, there were five of us total in the Central Region to do *all* environmental work for seven counties. Working in the regional office at that time, you really quickly became a jack-of-all-trades.

MM: Were you mostly inspecting lumber mills?

AN: Lumber mills, asphalt/concrete plants, and rock crushers. Those were the biggest ones. Then there was the fruit dehydrating plant with straight sulfur dioxide, straight SO_2, coming out of the stack. I took pictures of chlorotic vegetation around that particular plant. You know how plants are green? Well, the SO_2 emissions turns them white; they got bleached. They sent out new green leaves, but the chlorophyll was pretty much bleached to a cream color. It was an era where you could actually detect what pollutant had affected the plant by looking at it, because different plants had different reactions to different chemicals. So, if you had enough variety of plants, all of which were typically affected in some way, you could probably figure out what chemical had gotten them. It was an interesting way to use pumpkins and squash.

MM: My sense is that during that era, the early '70s, the kind of air pollution problems you were confronting left very visible evidence.

AN: Very visible. At the time, I attended what were known as control officer meetings, which is where the bosses of the local agencies all got together once every month or two, and discussed common issues, problems and solutions. At the time, it was pretty much collegial: let's work together because we've all got the problems and anybody who has a good idea should share it. We all were after the same thing, which was to get rid of the black smoke, get rid of the white smoke unless it's steam, and get rid of the odors. So, we had very focused activity.

As inspectors, we would do what we called windshield inspections. We'd drive by and if we didn't see anything, OK, they're fine today. We'd come back later in the afternoon, and if we didn't see anything yet, they're even better. Twice in a day, they were clean. Then we'd do site evaluations where we'd drive out and take opacity readings, visual emission readings, and see if they met the standards. If they didn't, then we'd walk in and talk to the plant manager or a boiler operator to find out what the heck was going on. If it was a hog fuel boiler, we'd check whether they were blowing soot at the time, a common operation that happens every eight hours or so.

MM: And they were still in compliance even if they were blowing soot? Do they still do this, blow soot every eight hours?

AN: Still do. It's to clean the boiler tubes on the exterior. We have provisions in the rule that as long as they do it within certain time parameters and for a certain duration, they were fine.

MM: What about some of the other industries operating at the time in other parts of the state? What kind of emission problems did they create?

AN: Well, Asarco, which was the copper smelter in Tacoma on Commencement Bay in Ruston, was also emitting huge amounts of sulfur dioxide. One of the actions Puget Sound Authority took was to get a sulfur dioxide control system put on the plant. That was a big change right there. They eventually got them to do some other pollution controls, which made a big difference. Still, during the last several years, even with the control system or acid plant at full operation, they were putting out 140,000 tons of sulfur dioxide a year, give or take 10,000 tons or so.

MM: What happens when sulfur dioxide is released into the air?

AN: Sulfur dioxide in the air does several things, one of which is that it'll form sulfuric or sulfurous acid.

MM: Also known as acid rain?

AN: Yeah. And it also forms sulfate particulate, which impairs visibility. In the Eastern U.S., sulfate is the major component of visibility impairment in the atmosphere. It's a white haze, white or light bluish haze. The brown haze is from organics, organic compounds, photochemicals.

MM: What else does sulfuric acid do?

AN: It eats the paint off your car.

MM: That can't be good for our lungs if it takes the paint off.

AN: No, it is not. It has major health implications. Sulfur dioxide is considered one of the major pollutants generated in combustion of diesel fuel along with diesel soot. Soot, along with unburned hydrocarbons, is a product of incomplete combustion of many materials. Diesel cycle engines are not especially efficient combustion units, and put out a fair amount of soot and a lot of unburned hydrocarbons. A lot of soot is just plain carbon.

MM: I recently looked at a pie chart showing sources of air pollution in Washington state today. The largest source today is vehicle emissions at 55 percent. Thirteen percent is from industry, and nine percent is from wood stoves. I wonder, if those sources had been measured in the early '70s, what that chart might have looked like compared to now?

AN: At that time, let's say around 1975 when I was beginning this work, the bulk of the air emissions would have come from industrial sources, followed by slash burning, open burning activities, and then motor vehicles, which, as bad as they were at the time, is really more of an indication of how bad and prevalent everything else was.

MM: Not that motor vehicles were somehow better than they are now?

AN: Everybody else was just that much worse.

MM: How would you describe the culture of industry at that time, having allowed for the polluting that was taking place?

AN: At that time, being careful with your wastes wasn't an important part of the culture. It was cheaper to buy new than it was to reuse. There were sulfite pulp mills that did not recover their waste chemicals. Kraft pulp mills almost never throw their used chemicals away, because the costs for their chemicals have always been much higher than the cost of recovering them. With lumber mills, if you can buy a whole tree of old growth lumber for a halfpenny a board foot, the fact that you threw away a third of the tree as unusable material still didn't bother you, because two-thirds of an old growth tree is still a lot of income.

MM: And what's the attitude now?

AN: We've moved on from the era when we considered that polluting is just a part of business. With economic growth comes affluence, and with enough affluence, people will say, no, being wasteful and polluting the environment is not acceptable. I don't want to hang my white sheets out in the morning and find them gray when they're dry in the afternoon. I'm sorry, that's not acceptable anymore. No, I don't want to have to repaint my car every three months because the air ate the paint off, that's equally unacceptable.

We've moved on from the era when we considered that polluting is just a part of business. With economic growth comes affluence, and with enough affluence, people will say, no, being wasteful and polluting the environment is not acceptable.

As the years have gone on, the focus has been on industrial sources. It's been on commercial operations that produce emissions of air pollutants. We have facilities that have gone from zero control to some having to adhere to the strictest regulations in the country. Aluminum smelters are a great example. Back in the '60s and early '70s, they would kill cherry trees with the fluoride emissions, or at least damage them and eliminate any economically viable fruit. Cattle would develop fluorosis from eating the vegetation the fluorides got in downwind from the smelter, which weakened their bones and teeth. If I remember right, if the cattle ate fluoride-laden feed long enough, their bones would be susceptible to breaking. Milk cows would pass high concentrations of fluorides on in their milk, affecting their calves and any people who drank the milk, and other health problems. Because of those effects, Washington, Oregon, and the businesses, sat down in a room, and in the course of a day or two, hammered out the outlines of a regulatory control program to reduce the fluoride emissions to a point that the levels would no longer cause those problems. That's what known as the Aluminum Smelter Rule, which was adopted in 1970.

The fluoride issue was kind of like the Cuyahoga River catching fire. It catches everybody's attention, so you deal with it. It was hard to ignore, especially when the orchardists sue everybody in sight for their lack of livelihood that year, and it made it real easy to crack down on it. As a result, we ended up with the tightest emissions standards on aluminum smelters in the country. The fact that we had two-thirds of the aluminum smelters in the United States in Washington and Oregon helped. Eventually, all those standards transferred all across the country to the other facilities.

MM: So, talk to me about the technology you used to measure air pollution then versus the technology you use now, and how that impacted your ability to conduct inspections and to regulate?

AN: Well, the dominant form of control included looking at things as visual emissions. We looked at the smoke density, mainly. At one point in time, inspectors went out with Ringlemann charts. The Ringlemann chart was a clear acetate sheet or white card with a hole in the middle, and it's got five segments around it going from clear to black. The first section indicated up to 20 percent opacity, two was 20 to 40 percent opacity, and it progressed to five, which was black smoke, pure black. At one point, people would hold that up next to the plume, or they'd hold it over the plume, to compare and get their reading. Washington and Oregon got together and developed a method to certify their regulators to "read smoke." The Department of Health, Air Pollution Control at the federal level, developed a similar process to certify individuals to calibrate their eyeballs to read smoke. Being certified meant that we did not have to have a Ringlemann card with us to do visual emissions evaluations.

Other chemicals emitted from smoke stacks and particulate emissions usually were evaluated by collecting a sample of the stack emissions and testing it with wet chemistry methods. Getting results took weeks. Ambient air quality measurements weren't much better than the stack methods. I had very little to do with ambient air monitoring beyond operating a hi-vol station, which was a type of ambient particulate monitor for a year.

MM: Sort of like a piano tuner?

AN: No, it's not that good. Now we are called "certified" smoke readers. You have to pass a test and the test has changed over the years. Initially, you had to pass it at a certain error rate. If you met one criteria, you were certified to read that color in six months, and if you met a tighter criteria, you were certified for 12 months. You did the test in black smoke, and you did it in white smoke. Now you have to pass the tighter criteria and are certified for six months at a time. Until about three years ago, Ecology operated equipment and certified visual emissions smoke readers, in Washington state. Some of the readers we certified were from Oregon, and British Columbia.

MM: So were you a smoke reader? Did you get certified?

AN: Yes, I was certified for almost ten years.

MM: Just by sight, you visually memorized, OK, this color equals this much opacity?

AN: Yeah. Basically, I was looking at the degree of visual obscuration that the plume had in relation to a contrasting object. You learn real quickly as an inspector to become very careful in regard to where you read a certain stack, and at what time of day. There were, and are, some really good readers who use blue sky as a background. I never got that good. I always had to have something else. I always had to have a hillside with a tree and sagebrush. That road has worked well for me because then I had both a light and a dark background, and I could compare the obscuration.

MM: So, I imagine, in addition to reading smoke, there are other tests that you conduct?

AN: Oh, yeah. Some facilities had opacity monitors in their stacks, which was an instrument that did about the same thing as a smoke reader. An opacity monitor looks for the degree of light attenuation across the light path. Also, there are emission monitors for some chemicals. Some of the early ones were very crude and included high workload equipment. Some of them were relatively simple. For the most part, people had an opacity monitor, and they may or may not have had an oxygen or C02 monitor if those were a combustion source. That was usually pretty much it, and if they had other emissions, there was manual stack testing. Kraft mills used a high maintenance continuous monitor that used water-borne chemicals and wet chemistry reactions to measure SO_2 and TRS (total reduced sulfur) emissions.

MM: What is a manual stack test?

AN: Manual stack testing involves using a probe that goes into the stack, sucks stack gas through the probe, then through a glass fiber filter, into a series of impingers. Basically impingers are glass cylinders that are in an ice bath, to collect water. In the basic particulate test, the impingers were to collect water only, with the weight of particulate collected on the filter, which falls out within the probe to determine how much particulate is emitted. The water content was one measurement that was used to adjust the stack gas volume to a standard condition. Eventually, as it became desirable or necessary to determine the concentration of other pollutants in the stack gas, those cylinders in the ice bath came to contain different chemicals that reacted with a particular air pollutant in order to collect it for later analysis. There are maybe five people left in Ecology who've ever personally done stack testing as a state employee.

MM: And you're one of them?

AN: I was never a leader. I was the person helping haul equipment up the stack, haul equipment down the stack, bring the ice up and down, move the probe up and down—grunt labor—but I understood what else was going on with the guy with the meter head and the guy on the stack. I occasionally was the guy on the stack.

Most of the testing that Ecology did was for particulates, and that's why we joked about flying mud on these wet stacks. We also did testing for sulfur dioxide, fluoride, and nitrogen oxide on occasion. The normal stack test team may have done other chemical testing, but it wasn't needed for my sources. The Air Quality program developed a test method for combustion efficiency that's called the total carbonyls test method. We still have it in our rules, and it's probably antiquated at best. Its purpose was to monitor partially oxygenated organic compounds, which are an indicator of completeness of combustion. The lower the total carbonyl number, the better the combustion.

As the years have gone by, more test methods targeting specific chemicals have been added to the list by EPA. And we got to the point at the agency where I think there were two reasons why we stopped doing source testing: one is that the source test crew got too old. After you've been doing it 20 years, it gets to be a problem. The other reason is that many of the tests had become more sophisticated than we had laboratory capability, at the time, to deal with properly. I am sure the individuals on the source test team will have different reasons why we stopped doing testing. At the same time that we were reducing our source testing, there was a growth of source testing companies who could do the job more effectively on an as-needed basis. As the emission controls got tighter, the companies

needed more emissions testing, just to prove that the new control met the standard that it was supposed to meet, than could be achieved by an annual or less frequent test by Ecology staff.

Jim Knudson conducts stack sampling at the Crown Zellerbach Pulp Mill, 1969.

MM: So industry, particular plants, would call on contractors to test them to make sure they were in compliance so that they didn't get fined?

AN: Right. Or some of it was done with acceptance testing of new control equipment. They hired a tester, or their construction contractor hired the tester, to assure that the equipment that was constructed and installed met the specifications that were in the contract for the equipment. Permits also started requiring periodic emissions testing, some as frequently as several times per month.

There are still a few plants in Washington that do their own stack testing. All of the compounds that they're required to get stack tested results for, they do themselves. Nothing ever prevented a company from doing that.

MM: Why do only a few do it?

AN: They're the only ones that found it to be cost effective for them. I think others did at earlier times, but they were the only ones that have found it to be cost effective.

MM: So, it sounds like there's a little bit of transition, from Ecology doing the testing to the point where industry is doing a bit more of its own. Were there some federal laws or state laws that prompted this?

AN: I think a lot of it may have come from the need to comply with federal New Source Performance Standards, as companies installed new equipment or modernized older equipment at their plants. There are more requirements for stack testing in the New Source Performance Standards, which had to be done within specific time periods after the equipment started operation, and permits came to require periodic testing even if this was not a requirement in the New Source Performance Standard. Some of the New Source Performance Standards do require periodic stack testing. For the state to do that work for every company is not practical, especially with only a three-man crew to do the work, because we had no source of funding to cover the costs of doing that testing. If we could have charged, I think we probably would still be doing stack testing. As it was, we couldn't charge. So, that was probably another reason we stopped doing source testing—it became too costly to do the job, compared to the return.

MM: New Source Performance Standards apply to existing industry in the process of updating their facility, am I right?

AN: New source performance standards (NSPS) is a federal law that requires EPA to issue regulations on the level of emissions control that new and modifications to existing sources have to comply with. The first New Source Performance Standards were issued shortly after

the 1970 amendments to the federal Clean Air Act, which established the program. These regulations use the term "affected facilities." Basically, it could be a single new boiler at an old plant. It could be all of the combustion units at a kraft pulp mill. It could be the particulate and fluoride emissions from five of the seven major sources of emissions at an aluminum plant. As EPA wrote these rules, they picked a source type, coal fire boiler, and they picked the pollutant or pollutant *du jour* at the time that the rule was written. The original boiler NSPS was to limit the emissions of particulate and sulfur dioxide from very large coal-fired and oil-fired boilers. Nitrogen oxides didn't show up. Mercury didn't show up. Carbon monoxide, not on the list. Carbon monoxide, as a point source issue, wasn't considered important in Washington until the '90s.

MM: Why is that?

AN: Carbon monoxide came along for the ride. One of the important things known at the time was that if CO was minimized, you had better combustion. In Washington, regulating nitrogen oxides became important when we started having some ozone non-attainment areas in the '80s and early '90s. In other parts of the country, such as Los Angeles, nitrogen oxides, hydrocarbons and ozone had been important for years. Nitrogen oxides from a combustion source go down as the carbon monoxide rate goes up, and vice versa. Manufacturers of equipment have become far more inventive since those days, and, in fact, they now design equipment where the nitrogen oxide emissions go down and so do the carbon monoxide emissions. So, they've learned how to control the chemistry and the physics of the combustion process.

MM: What has been the role of the Federal Government, particularly the EPA, in terms of state compliance with Federal air quality laws?

AN: The federal government has, under the concept of cooperative federalism, tried to push to the states all the enforcement and compliance jurisdiction with the regulations that EPA develops, controlling emissions from different types of emission units. So, there's been a large push all along by EPA to have the state do the job, or the local agencies do the job of enforcing the New Source Performance Standards or the national emission standards for hazardous air pollutants to the point of getting federal government funds to support staff in the state or the local agencies to do that work. The feds write the rules. We implement the rules, and in order to make them enforceable by us, we have to incorporate them into our own regulations, and then we enforce them directly as a state rule. In the rare instances where there was a disconnect and the state rule didn't get updated in time, there have been some situations where EPA did the enforcement in conjunction with a local air agency. It was EPA leading the charge, with the air agency signing onto the thing in the end. In most cases, the air agency got the benefit of the penalty that was paid by the source.

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MM: How was the Air Quality Program affected by Environment 2010, Ecology's 1988-1990 study of risk assessment in addressing environmental priorities?

AN: The results of Environment 2010 took the Air Quality Program from a status quo maintenance program of about 45 staff to a forward-looking program that was able get involved in more areas of air pollution control. It gave us a significant, steady funding source, which didn't go away until citizen initiatives reduced the car tab excise taxes. Environment 2010 allowed us to focus on more issues that coincided with the changes to the federal Clean Air Act, which led to changes in the state Clean Air Act, which increased the scope of what we had guidance to do. That allowed us to move into toxic air pollutant control, and more forward-looking motor vehicle work. We had the non-attainment areas that we were working on at that time, but 2010 definitely brought us up on toxic air pollutant issues, which is still driving much of the work of the program now.

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MM: How much did the Air Quality Program staff grow?

AN: It was about 45, and the staff, at the maximum, got to about 160.

MM: So when Environment 2010 was done, the results of Environment 2010 must have set air quality issues as a priority. Why do you think that was?

AN: Air quality became the media of the day. Water quality had its heyday. Heyday might not be the right term, but it had a long history of heavy focus. The Hazardous Waste Program had gone from a nothing to a very important program, and it was addressing major hazardous waste issues. Solid waste issues were pretty well under control at the time, the solutions being narrowly defined with the hierarchy of waste reuse disposal options. It was time for air quality to have its turn.

MM: What was the public's involvement and attitude toward air quality issues?

AN: Well, what's happened over the years is that the environmental groups and, for the most part, the public as a generalized group, were much more focused and much more participatory in the '70s with air pollution regulation development and air pollution control. But as the decades have worn on, air pollution issues, if they don't somehow touch an individual, are not considered as important. The attitude has been, it's always industry's fault, not my fault, that the air is brown. I may drive my car 30 miles to work every day and 30 miles home, have my barbecue in the back yard, and my burn barrel, and my wood stove, but I'm not causing the problem. It's that big industry over there that's causing the problem. Until you touch them as individuals and say, you can't use your wood stove or burn barrel, you can't drive your car, you have use to mass transit—that's when the people start getting involved. When they can't use the burn barrel, can't burn their trash in the back yard, that's when it becomes a big deal.

In the Issaquah Highlands, back when it was one house per ten acres, you could have burn barrels and wood stoves. When it's five houses or more per acre, it's a different story. Some people have had trouble making that transition. It's hard to get individuals enthused unless they have a particular issue, and it's usually a very narrow issue.

MM: Right, unless they can't see Mt. Rainier.

AN: Even that's not yet an issue. Not being able to see Mt. Rainier is not yet an issue, even though you could see Mt. Rainer a lot better when I was a little kid growing up in Seattle than you can today. We can access particulate records back into the '60s for the Duwamish area, for example, and other parts of the state. They're not exactly equivalent to what we're measuring today, but it's an indicative trend that there's less particulate air pollution then there used to be. So, it's not because of particulate that you can measure, it's the photochemical stuff—it's the reaction of nitrogen oxides and hydrocarbons, it's the emissions from cars, it's space heating, it's the emissions from barbecues, it's the emissions from restaurants.

So, it's the emissions from nonpoint sources as well as point sources, such as industrial facilities, all added together. Each one is just a little piece of the pie, but when all the parts are added together and you get nice sunny days, all of a sudden there's a lot of stuff.

MM: In terms of the Air Quality Program and its progress, what would you site as the best examples of the progress it's made?

AN: I think the best example is turning black smoke into non-smoke. The aluminum smelters and getting air emissions down, controlling TRS, reduced sulfur compounds, from kraft mills. People complain about the Simpson Kraft Mill and the aroma from it today. It has no aroma anymore in comparison to what it was as late as 1975.

MM: Where is the Simpson Kraft Mill?

AN: It's in Tacoma on the tideflats. A major contributor to the aroma of Tacoma. It wasn't just Simpson, there were a number of other heavy industries out on the tideflats that also contributed, most of which have gone out of business. Most have gone out of business because they couldn't deal with waste issues other than the air. Some of them are hazardous waste cleanup sites, but the sulfide, the rotten egg smells that come from reduced sulfur compounds was a major component. My in-laws live in Puyallup and they had no trouble smelling it in Puyallup. The air, as you went on Highway 99 and 1-5 through the tideflats, was brown—not blue, not clear, it was brown. It was thick and you could taste it. There is never a day anymore when you can do that.

The air, as you went on Highway 99 and 1-5 through the tideflats, was brown—not blue, not clear, it was brown. It was thick and you could taste it. There is never a day anymore when you can do that.

MM: And what's the next frontier?

AN: The next frontier is actually motor vehicle emissions, diesel emissions primarily. That's where our focus will be over the next few years. Diesel particulate on its own has been identified as one of the more highly toxic air pollutant problems, but it also has opportunities for being dealt with that are much easier than any equivalent for a gasoline-powered vehicle. Here in Olympia, they're using bio-diesel or a mix of bio-diesel and diesel fuel in the bus system. It reduces the particulate emissions a lot, especially sulfur emissions. It doesn't change the burning characteristics for energy out of the fuel, and it

doesn't change any of the lubrication properties that come out of it. It does all good things and very few bad things for air quality.

I think the fact that now we have cars and trucks that emit fractions of the pollutants that they did in the '70s, and that Industry has reduced its emissions by way more than 90 percent, and is now in the "also ran" source of emissions of most air pollutants when compared to motor vehicles, shows how far we have come in the last 35 years. Motor vehicle emissions are the next big thing for us to tackle along with toxic air pollutants as we continue to meet the legislative goal of the state Clean Air Act to "preserve, protect and enhance the quality of the state's air for future generations."

Diesel Emissions and the Art of the Clean Burn

An interview with David Adler
August 26, 2004

Adler

Position held at time of interview:

Diesel Emission Specialist, Air Quality Program, Northwest Regional Office, Washington State Department of Ecology, since 1992

Education / Certification:

- Associate of Arts in Diesel Technology, South Seattle Community College, 1979
- Automotive Service Excellence certified truck technician

Maria McLeod: So, Dave Adler, how did you acquire the nickname, "Diesel Dave"?

Dave Adler: Well, it's mostly because of my background and knowledge with diesel vehicles. That and the fact that I was a significant factor in starting the diesel emissions test program in Washington state. So, "Diesel Dave" was a good fit.

MM: It looks like, from your background, you were doing mostly diesel engine mechanics, maintenance and repair, before you came to Ecology. Was joining Ecology a switch for you?

DA: Well, not too much. They didn't just pull me out of the grease pit and say, start an emissions program. They wanted me to have some management experience and overall experiences as far as maintenance and purchasing of trucks and equipment, which I had done. They were also looking for someone who understood and could talk to the trucking industry. I did get my hands dirty for years, doing diesel mechanic work even before going to school, but they're clean now. So I had the knowledge, I had the background. I'd done it all.

MM: Tell me, what prompted the Diesel Emissions Test Program that brought you here 13 years ago, in 1992?

DA: There was word that EPA was going to start mandating a diesel emissions program. Our gasoline emissions program had been running since 1982. We get money from the EPA to run that, but for the most part, we aren't mandated by EPA to have a diesel emissions program. There was also some public outcry because people had to test their cars, while diesel trucks with visible smoke didn't have to test. Anyway, when word got out that EPA might begin a test program, Ecology jumped on it and wanted to be frontrunners. That's when I was hired initially to get the testing program going in the state.

MM: What did it take for you to get a diesel emissions program up and running?

DA: When I started, I knew diesel engines, and I knew diesel vehicles. Prior to my interview for the job, I didn't have a clue about air pollution. I knew there was something called an opacity meter. Opacity is defined as the degree that smoke obscures the view of light. It doesn't actually measure pollutants, just smoke. The more smoke, the more pollutants. I happened to find out before the interview that questions about these meters might come up, so I honed up on opacity meters. The Internet wasn't that big at that time, so I went to the library and I ended up hooking up with an equipment manufacturer in Woodinville who pointed me toward Bosch Distributing. They make an opacity meter, and I learned a lot about them. So, the first thing I did was to learn about the meters, what they did, how they worked, and what they were for.

MM: And what are they used for? How do they work?

DA: We've been using opacity meters since '93 to check the opacity of trucks and cars. We use a type of opacity meter called the partial flow. It takes a sample out of the exhaust stack or tail pipe of the vehicle and sucks it into a test chamber. On one side of the test chamber, you have a light source; on the other side, you have a photo receiver. As the smoke fills that test chamber and the light shines through it, depending on the density of the smoke, it reads out percentage opacity, zero percentage being totally clear, and 100 percent being totally blocked. Zero opacity would be your eyes wide open in a bright room, and a hundred percent opacity, your eyes closed real tight in the dark room.

MM: Then what else did you have to do?

DA: Once I started, I took a look at the state's gasoline program to see how they did emissions testing through vehicle registration. California had a diesel emissions program going at that time; so I was fortunate to be able to go there and tag along with the California Air Resources Board and their inspectors for a week or two, back in '92. Their program was a little different because they didn't do it through registration; they did it through fines—steep fines, too. Here, if you fail an emission test, you don't get to license your vehicles until you've repaired them to pass or made an attempt to repair or improve the emissions. In California, they weren't testing the general public. This was only for commercial vehicles. If you failed the test, it cost you $800, and they'd give you 45 days to repair the vehicle to pass. If you repaired the vehicle, and it passed, they'd give you $500 back, but it still cost you $300. Second offense was in the neighborhood of $1,500. Third offense, they'd deadline the vehicle on the side of the road, and this is anybody, not just California-based plate vehicles. If you were from Kalamazoo, Michigan, and you went through there, you could be stopped and have to do an emission test.

MM: I guess, at that moment, when you were observing the California Air Resources Board, and you were seeing how they set up their program, you could have proposed that Washington state do something similar here, right? You could have had a program more based on fining than permitting, right?

DA: Yes and no. That would have been kind of tough because I would have had to go through our Legislature to do that. And, to keep in line with the Washington Trucking Association, we decided not to test prorated vehicles. Those are the vehicles that actually may be base-plated in Washington, but they buy reciprocity licenses in other states so they can go drive from state to state without having to stop and buy permits. And that was our feel-good thing we did for the Washington Trucking Association.

MM: So let me see if I've got this right. They buy a plate in one state, Washington, for example, but then they can buy a reciprocity agreement from other states so that they can drive through those states without having to adhere to those state's regulations?

DA: Right, without having to stop for permits in that state. But, in regard to emissions regulation, the general public buy-in was a little tough.

MM: What do you mean by the general public buy-in?

DA: Well, I shouldn't say general public. The general public was actually pretty good about it because one of the reasons we started the program was because the general public said, wait a minute, I have to test my car, and you can't see anything coming out the tailpipe, but I see this city bus going down the road, and it's spewing out black smoke. How come I have to do an emissions test if they don't? Part of that makes sense, and part of it doesn't. If a vehicle is spewing black smoke, there's probably a problem there, but just because you can't see anything coming out of the tailpipe on your Volkswagen doesn't mean you're not polluting, because carbon monoxide is colorless and odorless; it will still kill somebody even if you can't see anything come out the tailpipe. But public outcry was one of the reasons we started the program. When I said buy-in by the general public, I meant more like the trucking companies. With some of the bigger fleets, and Washington Trucking Association was one, there were some hurdles. The mechanics—I hate to call them mechanics, these days they're technicians—but back then it was a good-old-boy network, they didn't like change, and they didn't like Ecology. You weren't going to tell them how to fix a truck. Their attitude was more like, if you can't see smoke coming out the exhaust pipe on a semi, then it isn't running.

MM: Was this the attitude in the late '70s or early '80s?

DA: It was actually more like the late '80s. The technology was slowly changing. It was changing a lot faster for the gasoline engine at that point. Diesel was probably ten years behind the technology of gasoline engines, and now they're probably two years behind. We've got 2006 standards coming up for ultra-low sulfur fuels.

MM: What does that mean, low sulfur?

DA: They took the sulfur out of the fuel. Originally sulfur was in diesel fuel for lubricity; it helps the fuel lubricate the fuel system and internal engine parts. High sulfur fuel could be as much as 5,000 parts per million sulfur. Low sulfur fuel has to be below 500 parts per million, and ultra-low sulfur has to be below 25 parts per million.

MM: And how does sulfur impact the environment?

DA: Sulfur is bad. After sulfur passes through the combustion process of an engine it becomes sulfur dioxide, which is very corrosive. In humans, it causes heart and lung disease and deterioration of the lungs' defensive ability. It is also a component of acid rain, which is bad for lakes and is also corrosive to buildings and other materials. I'm going to North Shore School District tomorrow. They've been burning ultra-low sulfur for a year, and I'm doing some testing on their buses. But even in the shop, you know, you start a high sulfur fuel bus and you can feel it. I got pretty used to it, but you would probably be able to pick it up just like that—a burn in the throat and the nose and your eyeballs. With ultra-low sulfur, you don't get that at all, even in a closed environment.

MM: And what are the long-term health effects or the effects on the environment?

DA: Well, sulfur is a bad thing; we know that. So by cleaning up the sulfur, the fuel is actually burning more efficiently. There's less lubricity in it, but there's less particulate, and particulate really is a bad thing. Particulate matter is what settles into your lungs, and that's what causes problems in kids, and the elderly, and people with respiratory problems.

MM: Let's talk a bit about this diesel retrofit for school buses and Healthy buses, Healthy children. First off, where did the funding come from? What was the legislation that provided the funds for the diesel bus retrofit, the diesel bus engine retrofit?

DA: There are two House Bills that we got our funding from: House Bill 6072 and House Bill 1243. The American Lung Association and Puget Sound Clean Air Agency got the ball rolling; they were really behind it, pushing for it in order to get the funding. We did have a couple of Senators, Ed Murray of the Transportation Commission was pulling for us and Jim Horn was the Chairman of the Transportation Committee in the Senate. He was instrumental in getting the funding as well for the retrofit program. It originally started out with the Union of Concerned Scientists. They did a report card in early 2000 on school bus fleets all over the nation and how clean they were. They happened to put this list out and the two states on the bottom of the list, California and Washington, had the worst school bus fleets in the nation.

MM: Were you aware that they were doing this study?

DA: No.

MM: Were you aware of Washington's status at the bottom of the list? Is that a potential you'd thought about?

DA: I'd thought about school buses being dirtier than a lot of the other vehicles. The school districts inherently don't have a lot of money, and they've got older equipment that's not as well maintained. It was the almighty dollar, but I thought it was the same everywhere. I didn't realize we were at the bottom of the barrel.

MM: So, the American Lung Association of Washington caught wind of this report?

DA: Yes, and the Puget Sound Clean Air Agency, and Ecology as well. That's what really started things moving. Then House Bill 6072 was passed in 2002. We gave it the name, "Washington State's Clean School Bus Program." Again, like with the diesel emissions

program, Washington jumped on the bandwagon and wanted to be frontrunners. They got Stu Clark at headquarters involved. He's our Air Program Ecology liaison to the Legislature. And he got me and John Poffenroth, over in Spokane Eastern Regional Office and Mike Boyer, a planner from Air Programs at headquarters—all of us—involved in it. Stu and Mike did the hard stuff, as far as the paperwork, getting the bids together to get a contractor to begin the installation. John and I did the fieldwork as far as checking buses.

MM: Did you go on-site and check buses yourself?

DA: Yes, I did. We'd go to the Educational Service Districts in the state and fill them in on what we had in mind. So, they'd get all the people together, and Mike, John and I would have workshops with technicians, and fleet manager's district transportation managers. Mike and I did them in Western Washington, and then Mike and John did them over in Eastern Washington.

MM: Was retrofitting something you'd done before with other vehicles? Did you know mechanically what that would entail?

DA: I knew what it would entail, yes. I had it done on my own personal vehicle, and so I knew what it was all about.

MM: And what is that process?

DA: There are lots of different things you can retrofit. Retrofit, the word retrofit means you take something and upgrade it with new parts or equipment. With our program, there are three things we do. One—the place where most of the money is going—is the diesel oxidizing catalyst, or the DOC.

MM: Is that a kind of catalytic converter?

DA: Yes. It's an oxidizing catalytic converter, which is the same kind of catalytic converters we used on cars in the late '70s, early '80s. It's a three-way catalytic converter that, basically, brings in its own air. The fuel that it gets to light the catalyst off is the pollutant. The pollutant heats up and starts a catalyst process with rhodium and platinum fladium. It superheats it, and then that burns off the pollutant, so what comes out the other end is cleaner.

MM: And that what's called clean burn, correct?

DA: Right. It's the oxidation working together with the catalyst process. Now they have better catalytic converters for cars because they use two-way cats with downstream air and an O2 sensor, but it doesn't work quite the same on a diesel engine.

MM: Are all of the school buses across the state, all 8,500, having this done?

DA: Well, not all of them, but probably 70 to 80 percent of them, just because the old ones are too old, and it's like throwing money away, because worn-out engines burn oil and oil can plug a cat, or because they're not going to be in service long enough to make it worthwhile.

MM: So, 70 to 80 percent is like around 6,500 buses, plus or minus. How much does this cost per bus?

DA: With the contract we have right now, around $1,000 installed each. That's for the DOCs, and that's the cheaper one. There's the more expensive one, what we call a particulate trap or filter, which are around 90 percent efficient. DOCs are said to be up to 50 percent efficient. I'd say more like 30 percent efficient. But right now the particulate trap is probably running over $3,500 installed, and that would be on a good day.

MM: So I wonder, if diesel is such a dirty fuel, why are we still using it? Why not an alternative fuel?

DA: Being Diesel Dave, I consider diesel an alternative fuel, but I've been shot down on that for the last 13 years. But, in response to your question, getting the sulfur out is a big, big issue. Cleaner fuels are more expensive, but clean fuel is a good thing, and the government is really pushing for cleaner fuels. Fuels have come a long, long way. I mean when I was a kid, my dad had diesel engines we ran off stove oil. We had a tank in the back yard that should have gone to a furnace, but it didn't go to a furnace; it went to my dad's car. And that was just the way things were done. Fuel's come a long way since then. High sulfur fuel and stove oil are hard to come by these days. You've got to go with the good stuff. So, that's a good thing.

Biodiesel is great. I love it. I love everything about it. I've burned it in my own vehicles. It's more expensive right now, and there's not enough biodiesel to go around. Even if they started mass productions of it tomorrow, we'd maybe have enough in the country to replace about 20 percent of the petroleum-based diesel that's out there. But, it could grow over the years, and it's a renewable resource. I think that's the way to go, and I think we will see the use grow over the next couple of years.

Diesel of any base, bio or petrol, is here to stay. You just can't get the power out of a gasoline engine that you can from a diesel engine, and if you do get the power out of a gasoline engine, or close, you're polluting a lot more with hydrocarbons and carbon dioxide, because you've got to have so much fuel going into that effort to produce the power. Diesel fuel is about 140,000 BTUs per gallon, and gasoline is about 115,000 BTUs. So per gallon, you're getting 30,000 BTUs difference. That's more power and better fuel mileage. We could talk about diesel all day if you wanted. I think it's the greatest thing since sliced bread.

MM: Well, related to diesel and school buses, you mentioned that you have another program, Healthy Buses, Healthy Children. Can you tell me what that's about?

DA: For Healthy Buses, Healthy Children, we've trained the State Patrol school bus inspection crew and bought them equipment to emission test all the school buses outside the emission test area. Anything inside the emission test area gets tested at the test stations, or some districts have out meters for testing because it's required by law, but outside the emission test area in all the other little school districts, little towns and counties, they don't have to test. Still, the State Patrol does an annual safety inspection on every bus in the state. We asked if we could train them, and buy the equipment to test all the buses so that, during their annual inspections, they could send all the information to us on those buses. Then we process it. We don't pass or fail them, but we might say, bus number 12 over here looks like it's running a little dirtier than it should, let's see what we can do to clean it up.

MM: How long has that been going on?

DA: We just started that program in the summer of 2004. I take care of the Western part of the state, and then John takes care of the Eastern part of the state. That's 8,500 school buses we're hopefully going to test.

MM: Did that program spring from the diesel school bus retrofit?

DA: It kind of did. There is actually a company from Iowa, Mirenco, that tests buses and gives their findings to the school districts, so that the districts can try to clean them up. They came and talked to the head of the State Patrol inspection, Lieutenant Robert Peterson, and asked him if he'd like to go with their product, which was full-service emission testing and data logging of all the results. He was real excited about it. He came back and started talking to the Office of Superintendent of Public Instruction, the transportation people there, and they said, yeah, that sounds like a good idea; let's see what Ecology thinks. So they got a hold of us and we said, sure, let's learn more about it. We decided we could use some of the retrofit money to buy equipment and do some training for the State Patrol inspectors to do the emission testing. Then we will take all the final numbers and analyze them and make recommendations if we see a dirty vehicle. We realized that instead of paying this other organization to do it, we could do it. Other than buying the equipment, we had the resources and people to get the same results and save some money; so we jumped on it.

MM: Do you think the school bus retrofit will have an impact on any commercial entity or fleet?

DA: Yes, I do. The commercial vehicle owners want to appeal to the general public because if people see a dirty truck going down the street, smoking, they're going to notice and think, Joe Bobs Trucking must be bad because that truck's smoking. So, they want a good image. There are a few that have gotten on the bandwagon. There's a little bit of money out there for them too, to clean up some of their vehicles.

MM: So can they apply for grant money, or how does that work?

DA: Puget Sound Clean Air Agency has done some work with some private entities and has been able to send some money their way.

MM: In relation to diesel vehicles in the state, what are some of your other responsibilities?

DA: Another hat I wear is to take care of all the diesel issues, complaints and problems with diesel vehicles on the whole, whether it's the Bellevue area or the whole area, because nobody else does diesels out of this office, Northwest Regional, so any diesel complaints are problems I handle, no matter what test station or area they come from.

Then I have 86 certification shops that I'm responsible for. They've gone through training and have become certified emission repair shops. I do audits, and I make sure there aren't any complaints coming out of those shops. I make sure the technicians stay certified, and if there are any problems, like a car fails at the test stations but passes in the shop, I go out there and referee those.

I also take care of all the diesel fleets in the area. The bigger fleets, instead of having to take their trucks and buses through the test stations, can self test. We have what we call a self-testing program where we train their technicians to actually do an emissions test at their own facility. Metro Transit, King County Maintenance, City of Bellevue, all the municipalities, all the state agencies, such as the Department of Transportation—they buy the equipment, test their vehicles, and then send all the paperwork to me at the end of the month.

MM: And how many vehicles are we talking about in a fleet?

DA: Well, Metro Transit has 1,800 pieces of rolling stock. They can't take them all through the test stations, so they test their own.

MM: Are they doing retrofits too?

DA: They have done some on their own. They have done some with state and local money. They're also running ultra-low sulfur fuel in a couple of locations as a kind of pilot project. One thing about ultra-low sulfur fuel is that it's got to be in the ground by June 2006. That's a federal regulation.

MM: Oh, so the federal government is changing diesel?

DA: Right, that's federal, that's all over the country.

MM: How is that going to impact air quality, do you think?

DA: Again, it goes right back to the sulfur, which is the bad stuff. Ultra-low sulfur fuel is a cleaner fuel. So anytime you have a cleaner fuel, you've got better burning and, as a result, less particulate or pollutants.

MM: In terms of air pollution, and sources of air pollution, how much of that is coming from vehicle emissions?

DA: About 55 percent.

MM: And how long has it been at 55 percent?

DA: Ever since I've been doing this. It might be a little less now, but I'd say, at its peak, it was 55 percent. Obviously, we're doing things differently with our emission test program, and with new technology, making vehicles cleaner. So, that percentage should go down, but at the same time, the other sources are being reduced, so their numbers are coming down as well. Also, there are more cars on the road than there were 20 years ago.

MM: As far as local air authorities go, those counties and areas that fall under the jurisdiction of local air authorities versus the Department of Ecology's authority, do those jurisdictional differences complicate procedures for you in terms of emissions testing and air quality?

DA: No, it really doesn't. For one thing, in this area we work really well with Puget Sound Clean Air Agency, Southwest Clean Air Agency and the Northwest Air Pollution Authority, too. The emissions program, as far as mobile source, has always been Ecology's deal. Indoor sources, stationary sources would go through local air authorities.

MM: What is the role of EPA within the work that you do? Do they have any authority or any role?

DA: Well, just as far as the emissions program role, yes. They say, if we fall under a certain category, where we have certain air pollution days that are not meeting federal standards, we have to be either in a full-blown program, or what they call a maintenance program. Right now we're in a maintenance program, where, if we continue to do what we're doing, we're good to go. With population growth, we're always behind, but our regulations, standards, and testing brings us back up. It's not going to get worse, but it may get a little bit better, which is great. So EPA has their Code of Federal Regulations, their air regulations, and we have to at least meet federal regulations, if not beat them. We have to do XYZ for the feds, but if we do ABC and XYZ, we're even better guys.

MM: So basically, the EPA is not going to knock on your door unless you're exceeding the levels.

DA: Right. And Spokane has had a couple of exceedances, but the state itself hasn't. Spokane really gets a bum wrap, because it's like a little Los Angeles. I don't know how much you know about air pollution and how climate and topography affect it.

MM: Isn't Spokane a kind of basin where pollution gets trapped?

DA: Yes, exactly. And a lot of particulate matter blows in from agricultural burn, and then you get an inversion layer on top of that, trapping it. That's California's problem, too, inversion. Los Angeles basin's problem is because of where it sits, not to mention the six million cars that are down there, but even with a million cars, and not six million, you'd still have the problem in Los Angeles because of the weather. You need three components for smog: one is hydrocarbons, another is oxides and nitrogen—both come out of gasoline engines—and the third is sunlight. Sunlight cooks those other two components together, and you get your photochemical smog. Spokane has maybe 200,000 to 300,000 cars, and lots and lots of sunshine in that valley. It all gets trapped in there, and they have big problems.

MM: So can you explain hydrocarbons and how they're created, you know, a brief chemistry lesson?

DA: Hydrocarbons are unburned fuel. Take a gallon of gasoline, pour it out on the ground, and you've got 100 percent hydrocarbons. That's all it is. If there's anything wrong with a car so that it's not burning all of the fuel, then that comes out in hydrocarbons.

MM: Has any other state done anything similar to what you're doing, the school bus retrofit program?

DA: California has, and New York has, but we've got the most comprehensive program, partially because of our fleet size, we can do it. For California to do all their school buses, it's going to take a lot more than the $5 million grant that we have as part of House bills 6072 and 1243, but we have the most comprehensive program and one of the first. Other than this company in Iowa that's doing this healthy buses program, we're the only state doing that right now, working with the State Patrol, to get all the buses done in the state.

MM: I'd like to talk to you for a little bit about the gas emissions program. I know that when you joined Ecology, it had already been in place since '82, about 10 years at the time, but I wonder if you could explain the structure and the history behind vehicle emissions testing, and why certain areas of the state require testing and others do not?

Department of Ecology employee John Raymond shows old and new gasoline nozzle designs.

DA: Those decisions were made based on population. When we first started the gasoline emissions testing program in 1981 or '82, federal government came in and said, Washington, you've got a problem with air pollution. You've got to clean up the air, but you have to do it by affecting the least amount of people possible. You can't just blankly say, if you live in XYZ county, you've got to test. So we started doing traffic flow studies. Obviously the Puget Sound Region, because of the population, it's going to be worse. So we started in the Puget Sound Region. For ten years we just basically had pretty much just King County, and a little bit of Snohomish County. Those were the only areas we were testing in. That was it. But as the area grew, instead of just taking in all of Pierce County and all of Snohomish County, we studied where people lived and where they drove to everyday. Right now, our emission program in Snohomish County goes from Smokey Point all the way down to Pierce County to the south of Fort Lewis. Smokey Point really doesn't have a problem with air pollution, but almost everyone who lives in Smokey Point drives into Everett or Seattle every day to go to work, and that's where the problem is. So if we grab those people, get them to clean up their vehicles, it's going to help the people in Seattle.

Then we went down to Vancouver, into Clark County, and we started a program there in '94, and they liked us so much that the county actually expanded the program. We didn't say, OK, if you live down here, you drive into Vancouver every day, so you're going to get tested too. They just said, let's expand it. So we did. We expanded that a couple years after that, and it's been going now for a couple of years.

MM: So, what is the general reaction to your coming in and beginning these emission test programs in these areas? Is everyone that friendly about it?

DA: For the most part, the local government was OK with it. People may complain, but it really went pretty smooth. We've had more problems with the shops in some areas when we tell them that, if a vehicle fails, they've got to fix it. Also, they can't take the catalytic converters off those vehicles anymore. Those have to stay on. The pollution control device is on that engine for a reason; leave it alone. So that was probably the biggest problem.

MM: Is that something that mechanics did, take off the catalytic converters?

DA: Yes, that was common years ago.

MM: And why would someone want to do that?

DA: Well, two things. One, and I won't call it ignorance, is about not having the knowledge of how the catalytic converter actually functions. Both drivers and mechanics thought it was a restriction. They had that banged into their heads since day one: you've got to get a lot of air in, and you've got to let a lot of air out. That's where you're going to get your most power. So they'd think it was a restriction because they weren't getting that air out. The problem was that technology in the late '70s, when the catalytic converters were first put on cars, wasn't where it is now, and they did have problems. They melted down and clogged, and then there was a definite restriction. So they pulled them off for that reason. And as technology got better and people got educated, they began to leave them alone, but there are still people out there who do it. There are always going to be people who tamper with things, but it's sure a lot less now than it was when I started with Ecology, that's for sure.

MM: Do you have any other problems with people complying with vehicle testing as it is tied with vehicle registration?

DA: There are always problems, such as people registering their vehicle out of the area to avoid testing. If everybody who registers their vehicle in Camano Island lived on Camano Island, it would probably sink.

MM: What are some of your other programs in regard to emission reductions?

DA: For the past two years we've had an anti-idling campaign. Part of that includes a push to make money available to increase awareness about truck idling and provide alternatives, such as electrification at truck stops. It was an idea that originated from the West Coast Diesel Collaborative to reduce diesel engine idling. Basically, the West Coast Diesel Collaborative would get a grant to pay truck stops to put these standards in, adding 110-volt hook ups. That way, trucks could come in and hook up to the electricity like you would if you setting up a trailer in a campsite. So then truck drivers could run their heaters, air conditioning or refrigerator units on their trailers with the electricity provided.

The other part of the anti-idling campaign is focused on schools, focusing more on the gasoline engines in this case, parents picking up and dropping their kids off at school, sitting there waiting. Children are a big issue when it comes to clean air.

MM: How would you characterize the progress Ecology has made, in terms of diesel emissions, in the time you've been with the program?

DA: When we started the Diesel Emissions Program, there wasn't anything going on in that regard, and there wasn't a whole lot going on anywhere in the country. Now, lots of states are testing. When vehicles do fail, they get repaired. Plus there are all the side programs we're involved in besides the test stations—the anti-idling campaign, Diesel Solution campaign with Puget Sound Air Agency—they're doing a terrific job with it—and the School Bus Retrofit program that has recognition nationwide. Next, we're looking to get into the same kind of retrofit process for construction vehicles, mostly in the Puget Sound. We're talking about off-road equipment, which is normally not regulated. We're not going to regulate that either. It's strictly voluntary, but there's going to be money available to get that going. So, yeah, I think we've made good progress. We started from nothing, and now we've got the emissions program and these side programs and new programs and campaigns under way.

Where There's Smoke: Eastern Washington Faces Field Burning

An interview with Grant Pfeifer
October 14, 2004


Pfeifer

Position held at time of interview:

Section Manager, Air Quality Program, Eastern Regional Office, Washington State Department of Ecology, since 1989

(Employed by Ecology since 1981)

Education:

- Bachelor of Science in Civil Engineering, University of Washington, 1980

Maria McLeod: As the Section Manager of the Air Program for the Eastern Regional Office in Spokane, can you explain how the air issues in Spokane, and the Eastern Region at large, are different from the issues in the Seattle area and the west side of the state?

Grant Pfeifer: If you looked at a geophysical type map, where the color changes on the kind of map projection, those are the areas where the nature of the air quality problems change. In other words, when you have an urban area like Spokane, or even Moses Lake, you're going to have the industries, the manufacturing that may create air pollution emissions because of the chemicals they use, or from grinding parts, or sawing wood and spewing sawdust, or whatever it might be. That's going to be very similar to what you would see in King County, from an industrial side, except on a much smaller scale, because the populations are a lot different. When you get out in more rural settings, they're going to have a resource-based economy. So you have timber, or mining, or agriculture, which is huge in Eastern Washington, and with those different enterprises come different kinds of air quality problems. For example, where the woods are, you're going to have some burning in the forests, either accidental or intentional; you're going to have mills; you're going to have logging trucks going 60 miles an hour on a dirt road, making a nuisance for, not the whole community, but maybe one or two households. So you're going to have different kinds of things, depending on what's going on in the land and how people are making their living.

MM: So in the western side of the state, we have a very wet climate. How does being on the east side of the Cascades, an entirely different climate, affect air quality?

GP: Oh, in a very huge way, in just a tremendous way. First of all, the climate influences what grows or doesn't grow. That affects whether the ground cover is vegetated or just dirt. If you've got a pretty dry climate, when the wind comes up, it's going to pick up dust and blow it around, off a parking lot or a vacant lot. If you have a vacant lot in a dry climate, like we do in the east side of the state, it stays vacant. On the west side of the state, it's blackberries. So the climate has a huge influence from that point of view. It has a huge influence on some of the industries, like agriculture. When a farm is in a dry climate, there are different challenges that can produce air quality problems, like the weather itself. We're

experiencing that right now in the Eastern Washington area. It's been a very calm and stagnant September and October, and so the daily amount of stuff that gets pushed into the air, dumped into the air, is building and it's staying there. The fewer weather systems that we have coming through, the greater the likelihood for the air pollution that we generate, and we're going to have to breathe it and live with it for awhile. It doesn't get blown out, it doesn't get flushed out.

MM: Oh, I see. Originally when you started talking, I was thinking that calm and stagnant might be good. It doesn't kick things up, but what you're saying is, no, pollution particulates hang out.

GP: Yes. Basically, there are two extremes of the wind speed. If there's no wind, you're going to stew in your own juices. If there's extreme wind, you're going to pick up a lot of dust. But, in the middle of those two, if we're delivered fresh air every day, that's the ideal, because we're always generating emissions that are going into the atmosphere. We're burning fuel or burning wood in fireplaces; we're burning stuff on the farms and in the forests, and industries have boilers, and all kinds of things. There are always pollutants going into the air. What you want is to have it limited and well dispersed.

MM: Can you explain how Ecology's jurisdiction works in that part of the state?

GP: For the Air Quality Program, we have direct service responsibility for all those counties, except for Spokane County, which has a local air authority. The Spokane County Air Pollution Control Authority does direct service there, but they don't address all of the air quality business because the car testing program, which is required in that area, is a program run by the state.

MM: What are the differences in terms of political attentiveness to issues on the west side of the state versus the east side, and how does that play out with air quality?

GP: Well, the politics are usually tied to the money, which is tied to the economy, which is tied to how people make a living, and the environment traditionally has been assumed to get in the way of that. We went through this exercise in a lot of painful political detail when we were working on farm burning, agricultural burning, because it's cheaper for the farmer to burn, and it's more cost effective for the grower, but the actual costs of the consequences of the smoke hadn't been factored into the big picture equation. Once we did that, we realized that it wasn't a good thing to allow for so much burning because of the cost of the health consequences. Politics gets involved in all of that in terms of who shoulders the costs. Who has the benefit of the quick and easy approach of making a buck? All those issues would naturally be ripe ground for politics, and it was, and it continues to be.

MM: How did your work at the Eastern Regional Office become focused on issues of agricultural burning?

GP: I went to the Spokane Office in 1985 to help set up the car testing program a few years after the program had begun in Seattle. About 20 years prior to my transfer to that office, the annual practices of burning grass seed fields got started. It is an agricultural crop where they'd actually grow the seed to plant new lawns on golf courses and that sort of thing. The crop is the seed, and it's a perennial crop, which means that it's like your lawn: you plant it once, and it'll last for a long time. Each year, after harvesting the seed, farmers would burn

the fields to get rid of the waste straw. The smoke from the burning of grass fields was centered around Spokane and the Coeur d'Alene area because there was a major seed processor there that processed the seed—the cleaning, bagging and labeling, as well as conducting research on different varieties. It was a thriving industry in the Spokane area, but towards the end of summer, every year, the community would get smoked out. Sometimes it occurred as much as once a week. It's the kind of thing where the streetlights would come on at noon on a bright summer day because there was so much smoke in the air.

People had been complaining about the burning and were concerned about it ever since the first fires in the mid-1960s. They brought their complaints to the local air quality authority, which was a very small organization, and to the state of Washington through legislation to study alternatives to this burning, so the industry could still thrive, but people wouldn't get smoked out. That process, which was really a political tussle—back and forth, promises made and delayed, that kind of thing—went on to the mid-'80s.

MM: You mentioned visibility and how difficult it was to see during the height of grass seed burning. Can you give an example, or a measurement of that lack of visibility?

GP: Well, yeah, it would be hard to see across the street, like the middle of a snowstorm kind of visibility. You'd start a summer day expecting beautiful weather, and if you had an outdoor wedding planned or something, you'd do that at your own risk.

MM: Why did farmers make the choice of burning a field rather than plowing it under?

GP: Well, the grass farmers, they'd like to plant it once and then not plow until maybe 12 years later. The process to grow and harvest grass seed as a crop, is to let it grow a couple of feet high, to the point of growing seeds. Then the growers mow it. That becomes straw, and once it dries out in a mat on the field for a week or two, they'll come through with the harvester, which picks that straw up, shakes the seeds off it, and collects all those seeds. Those get packaged and sold.

MM: So, the purpose of burning the field is to prepare it for the next season.

GP: That's what they would do, yeah. What the research has shown is that you need to have the base of the plant, the grass plant, called the crown, exposed to a certain wavelength of infrared light in the fall, so it'll go into a vernalization phase and be in a reproductive mode to make a lot of seeds the next year, otherwise it will just be turf. Our lawns are mostly turf. We get a little bit of seed sprouting here and there, but if you have the crown exposed, it'll be in the reproductive state.

MM: And how many acres are we talking about? I'm trying to get a sense of, when you say people were smoked out, what people were exposed to all at once. Are we talking about really large areas?

GP: Well, going back to the late '80s, we thought there were about 30,000 acres of grass seed burned each year. We later learned that that was only about half of it. Most of that was in Spokane County, about 25,000 acres, right near town, just over the hill. The burns from those fields made great big mushroom cloud of smoke plumes that would go up and then, at night, settle down. If the wind changed, it could blow into town. Or it could go another route and affect some of the outlying communities. So, there was a real uproar

from some of the resort communities in northern Idaho. The smoke can travel 50 miles and blanket an area like a dense fog. It's caused traffic accidents because of very poor visibility. People have died. There have been lawsuits back and forth. People have been rushed to the hospital. There have been several deaths attributed to people being overwhelmed by smoke.

MM: If it had been occurring for 20 years prior to that time, what, specifically brought the issue to a head in the mid-'80s?

GP: I think several things were going on during that time period. There was greater understanding of the health effects of particulate matter—smoke, air pollution, and such. The science about the consequences of smoke, as a legitimate health concern, was improving and continuing to show that it is more and more dangerous than we thought. It's not just a nuisance, it's not just a traffic hazard, but it's a real health problem. So there was momentum heading in that direction. Also, the community of Spokane was starting to grow towards the end of the '80s, based on economic development initiatives. The community had been suffering somewhat from not growing as much as it hoped it would. The circumstance was mostly because the industries were changing. Mining was on the decline. Timber was on the decline. Some of these resource-based economies were changing, so the Spokane Chamber of Commerce and economic development groups were pushing for growth, seeking industries from California. They were actually courting people who were tired of the California rat race to bring their businesses, small businesses, to Spokane. People who thought they were going to get away from air pollution when they moved to Washington were subjected to the smoke blankets, and they were bringing forward complaints, too. So during the period of the late '80s, the Spokane County Air Pollution Control Authority, under the leadership of one of their board members, who was a nurse by profession, started taking a hard look at the field burning practices. Since it was under local jurisdiction, they suggested proposing regulations to phase it down. Then people came out of the woodwork from both sides. The public hearings, which were held in 1988-'89 time frame there, would often run all day; there were that many people who came out to give their testimony.

MM: Those were all people coming to testify, to describe their experience of being smoked out every year?

GP: Yes. There were people with cystic fibrosis testifying what their quality of life was because of the smoke, and people complaining about the smoke. Then the industry reacted, saying, you can't touch us; you can't regulate us. You're going to drive us out of business; there's nothing we can do. So there was a change in the rules. It wasn't a complete package to address the problem, but it adopted some changes in burning procedures.

MM: And what was happening in terms of legislation at the federal level, or perhaps in state but outside of Spokane?

GP: In 1990, the first President Bush signed into law new changes to the Federal Clean Air Act Amendment. During that same time frame, '88 to '90, the Department of Ecology, along with other environmental concerns and leadership interests around the state, had gone through a comprehensive analysis and discussion, which we called Environment 2010, to identify current environmental threats, trends, and whether things were getting better or worse. The lead question was, what is the environment going to be like in 2010, and what

do we need to do about it if we don't like what the future picture says. During that process, the risks from air quality problems rose to the top of their lists of concerns.

MM: And what kind of legislation resulted?

GP: Stu Clark and many others helped to get the Legislature to update the state Clean Air Act, and they made some fundamental changes. That legislation was signed by Governor Gardner on May 15, 1991. The old state Clean Air Act, as it was applied, was focused on industrial discharges. There were other parts of it that were very good on different kinds of citizen-caused air pollution, and then, of course, there was the car testing program to keep cars running at low emission levels, and it was a law that slowed the deterioration of air quality. Well, the new law in 1991 changed things. It said we've got to clean it up, we've got to prevent air quality problems, and we've got to take dirty air and make it clean. That was a fundamental shift. Another notable change in philosophy, was the thought that anybody who's part of the problem is going to be both part of the solution and part of paying for the solution. So, there was a financial mechanism to make it work.

There were parts of the older law that were very good, but they were never implemented because there was nobody to do it, because there was no money to do it. Well, that changed with the adoption of the 1991 State Clean Air Act, and it was a really exciting time to think about, you know, a chance to try harder, have the resources to do it. Another aspect of that law is a recognition that air pollution is often made up of the small contribution of hundreds or thousands of smaller sources, things that you would overlook otherwise. That resulted in a greater emphasis on the pollution that is caused by traffic congestion and outdoor burning by individuals, wood stoves, and things like that, because it all gets dumped into the same common air shed.

MM: I imagine that this was the era when the tension between the grass growers and the affected citizens began to heat up?

GP: Actually, just around the time the law was being changed in Washington state, the local Chamber of Commerce said, look, this isn't good for Spokane to have the clean air advocates, the "breathers," and the farmers yelling at each other anytime they encounter one another. It makes for entertaining media, but the reputation of this community was going downhill. So, they put together a collaborative effort to work through the issue from a regional point of view. That group included people in Northern Idaho, Spokane, Spokane County Air Quality, Department of Ecology, wheat growers and grass growers, economic development people, tourism, and real estate developers. The group called themselves the "Field Burning Summit." Part of their agreement was to get more information about the consequences of burning, and so a follow-up survey was commissioned to contact the people who were complaining about the smoke. Each year, when the smoke would come in, the phones would ring off the hook at Ecology, at Spokane Air Authority, at the Idaho Department of Environmental Quality. The grass growers wouldn't publish their phone numbers because they didn't want to get irate calls, and this Field Burning Summit, this collaborative group—stakeholder group as we call them today—decided to do some follow-up. A lot of the industry, the growers, were denying that the smoke was a problem. It had been their longstanding mantra that it's just smoke; it's just steam and water and it's not going to hurt anybody. And it's just one day a year.

So in the '93-'94 time frame, there were 600 complaints, and most of those were health concerns as the follow-up contacts showed that people were having trouble breathing. They had to boost their medication. They had to go to the doctor, and they had to stay indoors, or they had to leave the area. By then, the Field Burning Summit agreement had run its course and it was time to take it to the next level. The Lung Association, which was a member of this group, was pressing the growers for what they termed a "date certain," a date by which we could be certain that the burning would end. The growers had been promising to reduce burning since 1966, and it hadn't changed. It had actually increased at different times, depending on the market price of seed, so the call of the day was "date certain," and the growers didn't want to do that. So, there was a race to see who could be first to quit the Field Burning Summit in protest. There were competing press conferences. No, growers would say, we quit first, and the Lung Association would say, no, we quit before you did, each blaming the other for their unwillingness to move.

Then the grass growers went to the Washington Legislature to get the law changed. The nature of that change was presented to the public by the Lung Association as a deregulation of the industry. That galvanized the breathers' position against the grass growers because the argument being made was that they're not interested in clean air, they just got themselves deregulated. It was one of those last-minute political moves tacked on to a bill.

MM: Under the radar?

GP: Kind of under the radar, yeah. Following that action, the citizens who felt they'd been left out of the debate formed an organization called "Save Our Summers." It was a grassroots group organized for the purpose of reducing smoke-filled skies in summer. They had a strong membership, maybe 3,000 members, 1,500 of which were dues-paying members. Their leadership and director and staff were all volunteers, mostly moms of asthmatics, but there were those members who were interested in the aesthetic part too—economic development. It's not easy to invite people to come to a lake resort when you can't see the lake out of your hotel room. They worked hard to get public support, legislative support, and agency support. They thought that the Department of Ecology wasn't doing its job. Under the state law, there's a special section for grass field burning. The law placed a huge responsibility on Ecology, rather than on the industry. One of the things Ecology was supposed to do was to issue permits for grass field burning. We had been doing that. Another thing Ecology was supposed to do was conduct a research program looking for alternatives that would promote the grass seed industry, which would allow it to continue to thrive while limiting the amount of burning. There was a provision that would allow Ecology to limit the amount of burning if there was an air quality problem, if the emissions were not effectively managed, and there were some other reporting requirements on how we handled the research fund and that sort of thing, but those are the basic nuts and bolts elements of the law. The research piece had been there, and the direction of it, had been placed with the growers themselves. There hadn't been much progress outside of building a device that would drive a flame across the field that was like an upside down barbecue on wheels that would scorch the earth, consume the straw, and do the same thing that field burning would have accomplished. It isn't very practical, and it wasn't going to work on the field, but the farmers kept directing research money toward that.

MM: And did the growers continue to conduct their own research?

GP: Well, in 1991, the management of the research fund changed to the Department of Ecology, and an agricultural burning task force. So, the Department of Ecology solicited proposals for research, looking at three basic questions: can you produce a grass seed crop without burning? If you can, what are you going to do with the straw that you didn't burn? And, what about any other consequences? That is, will not burning promote different kinds of diseases or infestations, or other things that are sort of tertiary in nature that need to be addressed? So, we started that. It caused a huge flap in the industry because we had an outsider come in from Oregon, someone who had worked with grass growers there, to demonstrate that you could get a seed crop without burning the field. He was able to show you could compost the straw, and it wasn't this overwhelming residue management nightmare that farmers had been saying it would be. He was able to convince some growers to let him borrow a corner of their fields. They always gave him the worst land, and I think maybe they were thinking, well, this will prove, once and for all, that it can't work, but it did work. It produced results as a demonstration project, so that was in 1991.

In 1992 and '93, Washington State University continued that same work under the research provision of the law, and Ecology was directed to oversee and administer the project. So, during the period when the Field Burning Summit was making some progress, and then later unraveled—between 1990 and 1995—some research had been collected about how to grow grass without burning, under the auspices of an expert at Washington State University, peer review, the whole bit, and it showed that there were ways to do it. In the summer of 1995, Save Our Summers petitioned Ecology—not in a petition sense, but they wrote us a letter—and we got similar letters from legislators, asking us to carry out the provision of state law that called for us to conduct public hearings on alternatives to burning, and to see if there was an alternative. If there was, to make a decision about it, and if that was the case, then to ban burning where that alternative was reasonably available. So, in the summer of 1995, right in the middle of grass burning season, and some smoke-outs, we committed to doing that as a department, and we announced that we would hold a symposium in the spring of 1996 in the middle of March, a three-day event to solicit testimony and ideas and discussion on alternatives, on economics, and on the health effects. Those were the three key issues to which we devoted a day each. Every aspect of this subject was contentious. There was tremendous fighting and political wrangling about which day would be dedicated to which topic, and who got to talk first, and such. It was the worst of human behavior, which, in hindsight, shouldn't have been unexpected because you're talking about a person's livelihood, their ability to breathe, and, potentially, about their life. I'm blessed with decent respiratory health, no asthma. So, I don't know what it's like to try to breath through the straw, as it's often described, and to feel like your world is closing in. That was the nature of the complaint that we heard time and time again, especially from those who were affected. So, we had some preparations underway for that summit, which we called a symposium, the Grass Burning Symposium.

MM: When was the symposium to be held?

GP: The scheduled time was in March of '96. So it would not have been right in the middle of the field-burning impact season. Save Our Summers was busy working during that same period that we were preparing for this burn program. I should say that, in 1995, a general agricultural burning regulation had just been adopted, to address not only grass burning, but also other kinds of farm burning. That included a new permitting program with a fee. So, we were busy implementing that as well. Most of this had been centered out of the

Spokane Office, and Melissa McEachron came over to help with that enterprise in developing that regulation and was the principal person involved in that. There were lots of road trips to farming communities to talk generally about field burning and agricultural burning, whether is was stumps or Christmas trees, or cranberry vines, or whatever, all around the state. There was a lot of interest in ag burning at the time. So, in 1995, we made this commitment to pursue that paragraph of the law. Meanwhile, Save Our Summers had been at work gathering medical information, and they got the medical community on board with getting rid of grass burning. They were sick and tired of it. Some of the physicians who had been serving patients in the area over the decades believed that the medical information, the scientific information, showed that the smoke was a hazard. Their patients were telling us that, and Save Our Summers got the doctors to tell us that, too. One physician, through the Spokane County Medical Society, surveyed the entire society of physicians to see what they thought, whether the grass burning smoke was a health problem. Out of the 600 members, 580 responded, yes, it was. The other 20 said, we're not really a policy group, we shouldn't be voting on these things, and there were a few who said, I don't think the information is conclusive. So, the doctors came forward and met with Save Our Summers and Ecology senior management. We drew the conclusion, as an agency, that we couldn't wait to do something. So, while we were on this one path to go through a decision about alternatives, we decided to invoke a limit. That was a separate paragraph of the statute that basically said that, in the meantime, if there's too much burning, you can limit it, and that's what we decided to do. The Director, Mary Riveland at the time, came to Spokane to make that announcement a week or two before our Grass Burning Symposium.

MM: So this is quite a big deal if the director is coming to Spokane, right?

GP: Oh yeah, it was all front-page news. All the TV stations, all the talk radio, was about grass burning. Our clippings scrapbook is huge.

MM: Did you participate in the press conferences?

GP: All the time. I was on the news all the time on this subject, in particular. I'd been on the news when the car testing program was first starting up in Spokane, and a lot of talk radio. People would call in and ask, how do I get my car fixed; or complain that it was over-regulation; or ask, what we were going to do about the diesels, and that kind of thing. So I cut my teeth on that subject. But it was the same sort of thing on the field-burning topic.

MM: So what happened when Mary Riveland gave her press conference in Spokane?

GP: The press conference was followed a few days later by the symposium on burning. The tide had turned. The grass growers had always had their way with regulators. They were used to that. There had been a period, just before this time frame, where Ecology staff would talk to growers and say, why don't you take a step forward, set aside a portion of your field and experiment on it? Some growers would respond by calling up and trying to get that guy fired. It was kind of an all-or-nothing deal. They chose not to do anything, and so they ended up with nothing, basically, and I think if you interviewed grass growers today, those who are no longer burning, they would say they had made a mistake. They had been given an opportunity, even before the director had made her decision, you know, sort of a last chance, can't you do something? One county commissioner, during his board meeting, said, when I became county commissioner seven years ago, you guys promised that you

would do something about this soon. It's been seven years. I'm looking at the chart. There's more burning now than there was then. How can I believe anything you say? This was all in the public forum, open session, all quoted in the newspaper. The situation was at a crisis point, and Ecology stepped in and made a decisive move. Every single person in the agency was proud that day; it was great.

MM: It probably felt like a real victory.

GP: It was a victory. It was hard to regulate the sawmill that had a little bit of stuff coming out of its stack when some days you couldn't see the sawmill because of the farm burning, which was permitted. So the agency took a bold move, a decisive move. It was a move characteristic of leadership, making the right decision even though it was difficult. Immediately, the industry tried to undo it through petitioning the Governor, or through political connections, through meetings with legislators, asking us to not be so prescriptive, asking for more time, asking us to work with them now. It was too late. The agency had decided to reduce burning by a third that year, and another third the next year, and then, in 1998, we thought that this other process would have come to a decision point of whether the alternatives were available.

MM: And did that happen?

GP: Yeah, it did, but not just as a matter of smooth sailing. In the meantime, it was really exciting. We had a regulation, we had a decision, and a regulation that we adopted on an emergency basis. After tremendous criticism, that went into effect. We had to implement it that summer and enforce it, which we did. We caught some people cheating, burning more then they were supposed to, and the next year was really tough, because it was the second third. Meaning, the grower could only burn one-third of what they had before. So with that first third, they could change fields, or retire some early, or something like that.

I think the real crisis in enforcement hit in the summer of '98. We had been working hard in 1997 to implement this regulation change. The emergency provision only lasts for a short time, so we had to write a new rule, which we did, get it adopted, educate the new director, Tom Fitzsimmons, on the need to carry forward. He was very supportive of the decision that had been made. We had to defend ourselves in court over that regulation.

MM: And when you had to defend yourself in court, were you sued or brought to court by the industry?

GP: Yeah, we were sued by the industry on every kind of challenge they could think of. Once we adopted the rule to phase down grass burning, it got challenged by grass growers in the area and worked its way to Thurston County Superior Court in July 1998. So, while we were doing the legal preparation for that, we were developing a new regulation to certify alternatives. But in mid-1997, we were scrambling. This was in the field office in Spokane, which was a center for the regulation development as well, in partnership with the headquarters office in Lacey. We were scrambling to just answer the calls, answer the letters. It looked like we weren't going to be able to get the certification process back on track by 1998, so we called the boss, Joe Williams, and told him that, and the word went out that we might not make the 1998 target. There was a huge letter-writing campaign by Save Our Summers, accusing us of breaking our promise. Letters went to Ecology, and letters went to the governor—I mean, hundreds of letters. In each of these cases, letters began,

Dear Governor Locke, don't share this with Ecology. They're traitors... And that was from the clean air side. On the other side, was all the criticism and complaints by the growers, which was focused, if you will, in the lawsuit challenge and our phase-in of regulation. So we decided that, by making some changes and assigning just about everybody who was employed in the Air Quality Program to the new grass burning rule, that we could do it in time to have it be effective in 1998, which would be year three of the phase down.

MM: How did that translate for you and your staff, in terms of the amount and intensity of the work you were doing?

GP: The light in the office was always on around the clock, as well as on the weekend. Somebody was always working. Our computers were a particular challenge. Our agency has a practice of staying reasonably current with computer technology and networks; so every so often, they'd come through and replace our computers. When it was our turn, everybody got new computers, and then the hard drives started failing. People had two- to three-hundred-page documents they were working on, and they would just go like that, with no warning. It was at a time when our network backup wasn't as robust as it is today. So, we adopted this practice of e-mailing everybody on the team everything we had, daily. Our files were getting huge, but you needed to do that, otherwise it would go poof, and you'd lose everything. People would break down in tears.

MM: And how did that effort, your work, coalesce?

GP: Well, we adopted the rule in May of 1998, this certification of alternatives rule, and just as we were getting close, there was a briefing with the top management of Ecology, as there always is when they're signing something that changes how something is going to work in Washington state. So, we told the senior management what we had done, and that we were on solid ground. There was a decision to be made, but it was the right decision, and so Tom Fitzsimmons, our director, said, OK, I'm ready. We had a press conference the next day in Spokane, and he came over to sign the rule. I mean, all the forms and orders and so on. We were still working on it all right up to the last minute. Then we went to a press conference to announce that we had decided to certify the alternative to grass burning. The public, the clean air groups, were thrilled about it. The growers were really unhappy about it, saying they needed more time to work through the reduction, the phase-down was too steep, Ecology was making the wrong decision—all those things you would expect to hear.

MM: And did you get to relax after the press conference, enjoy your victory?

GP: Well, after Tom Fitzsimmons was on his way back to the airport and the rest of us were still at lunch, one of the team members, who was relatively new to Ecology, whose life at Ecology had been this subject, said, that was fun, let's do it again. The rest of us were exhausted and thinking, come on, it's only been 10 minutes, let's take a break. As it turned out, we did not have a break. We were in the midst of supporting our legal team to defend the phase-down rule in Superior court, and the trial date was the first week of July. There were three days scheduled for the hearing.

MM: OK, remind me again what the phase-down rule was.

GP: That was the one that said, in the meantime, cut back the burning, one-third, one-third, and then the certification or alternatives rule was the one that said, rake it instead of burn it. So, we were still heavily into the grass seed subject for that summer of 1998, and then it was grass burning season, which was no longer allowed in Washington state. People were worried about the rate of compliance because—let me say it this way—some of the growers didn't act like they were going to roll over. So, we wanted to have a strong field presence. We chartered aircraft. We did field work in the middle of traditional grass burning season. Save Our Summers, some of their board members, had gone out to inspect this hotbed of resistance or recalcitrance. Some of them had actually been arrested for criminal trespassing over the weekend. It was all over the newspaper. Then two of our field staff got kidnapped, captured, detained—I still don't know what to call it—they were penned in behind a gate with farmers and their pick-up trucks blocking them in.

MM: Kidnapped?

GP: Call it what you want. The local sheriff knew some of the farmers, had gone to high school with them. Our staff supervisor, Mark Stevens in Spokane, had explained to the deputy that we had the right to be there under the Clean Air Law, and so on. Our staff was just doing their jobs, and so they were released. Big political flap over that. It was front page in the newspaper, seven days running. It was a pretty wild time during the summer of 1998. Lots of enforcement followed that—some penalties that we issued for grass growers who burned in violation of state law and regulations. We won our court case. Our legal team did an outstanding job at presenting some very confusing information about contingent valuation, economic analysis, and different environmental impacts of farming without burning versus farming with burning. The challengers in court tried to pick into every single thing, from constitutionality, to failure to do the environmental review properly, to improper economic analysis. It was the kitchen sink and every argument they could think of. Our legal team was fantastic about supporting us through that.

So the rule stuck, and growers got the idea that we meant business when we issued fines to those who failed to follow the rules. Of course, each one of those cases was appealed, and we've sustained and succeeded in every one of those. So 1998 was an exciting summer.

MM: And what was happening in terms of other agricultural burning, how did grass seed burning affect that?

GP: During that same period, the amount of wheat burning was increasing dramatically. In 1998, 230,000 acres of wheat fields, maybe 250,000 acres, went up. There was still a lot of smoke, and the problem of field burning moved to Pullman, Walla Walla, the Tri-Cities and occasionally to Spokane. Save Our Summers was furious that they had worked so hard to get Ecology to do its job, that Ecology had worked so hard, and yet there were still smoke problems from field burning. So we shifted attention to wheat stubble burning. All along, there'd been a collaborative effort under the auspices of the Ag Burning Task Force, a part of the state Clean Air Law, to work to reduce burning to the extent practical, to not burn if there were alternatives, to make sure everybody had a permit, to allow the burning that was reasonably necessary—but to make sure it was done under conditions that wouldn't smoke people out. Well, 1998 was a smoke-out year, not grass burning, but from wheat stubble burning. The foundation for how to approach wheat stubble smoke had been laid through

the work to address grass burning smoke, an effort that had been underway really for a couple of decades, but over the course of the mid-'90s, had really become focused and got some momentum and was brought to resolution. Today, the grass growers in Washington grow without burning, and they're doing OK. It's harder. It's much, much harder than it was when you could burn, and you could let a field stand for 12 years. A lot of them are rotating on a three- or four-year basis now. There's a lot of grass growing that's on an annual basis, under irrigated production, and it makes a very good rotation crop in the Columbia Basin with wheat and potatoes and things like that. So, the nature of farming grass seed has changed.

MM: What was the proposed alternative to burning?

GP: Well, we said they could rake it. You've got to expose the crown to light. You can rake up the straw. You can shorten the rotation instead of allowing the grass field to go for 12 years and expecting it to be productive when it's a tired old field. We didn't prescribe what they had to do. We just said that if you do it this way, you don't have to burn, and since you could do it that way, you don't get to burn.

MM: So in raking it, you don't mean people were going out there manually with rakes, but with machines, right?

GP: There are huge machines that rake it. I don't know if you've ever thatched your lawn with a power rake, but you can do that sort of thing on a grass seed field too. Then you have all this straw you have to bail up and move and do something with.

MM: Which can be composted?

GP: You can compost it if you want. The growers, most of the growers, as I remember their discussions, thought that if they did all that work, then they should sell the straw to somebody. The grass straw, although it's not as good as alfalfa, is used as a feed supplement for livestock. It's lower in food value, but you can kind of use it as filler. Sometimes, if there's a hay shortage because the weather in Texas is terrible—or Montana, or wherever—they can sell it. There's been a push to find viable uses for that as a raw material, and eventually there will be a day when very little of it gets composted because it's a good fiber source.

MM: What about the wheat fields?

GP: That's changed too. It's an equally long story to address wheat fields. It's interesting, and as political, maybe more so in some ways because there's a lot more wheat growers. It's a lot bigger value crop for the state of Washington.

MM: Two-hundred-and-thirty-thousand acres burned versus, I think you said, 60,000 acres for grass seed?

GP: Yes.

MM: Why did grass seed burning become the first big issue as opposed to wheat fields?

GP: First of all, the amount of wheat burning had gone up and down over the course of decades, depending on federal programs, farming practices, subsidies, diseases that have been slowly taking hold, regulatory pressure and resistance. It was further out in the rural

agricultural areas, and not everybody burned their wheat field every year. Some did, but not everybody, not by a long shot. The amount of wheat field burning is only a few percent of wheat production acreage. Whereas, in grass field it was everybody, every year, every acre every year, and it was really close to town. Also, recently published research shows that the potency of grass burning smoke, the intensity, is five or more times stronger, more toxic in general, than wheat stubble smoke. The wheat stubble burning was scattered over a longer period of time instead of condensed into the months of August and September. So, a number of reasons made it seem like the smoke problem from agricultural burning was caused by grass fields. Once grass fields burning was resolved, than you could see beyond the horizon to the wheat stubble problem.

MM: So in the end, how did the grass seed burning issues affect compliance for the wheat field burning?

GP: Grass seed burning set the foundation for making progress on wheat stubble burning, because Ecology had shown it was serious about the smoke and its consequences. That, I think, scared the wheat growers. I don't think "scared" is an extreme word to use. They were afraid that we were going to do the same thing to them. So, they came forward and said, look, give us a chance to clean up our own house. The grass growers had multiple opportunities to do that, and they didn't. They failed to make an inch of movement, and some had admitted that to me, so I don't mind repeating it here. The wheat growers said, give us a chance to fix our own problem, which we did, and that's been largely successful, too.

MM: And what do you think about this issue now, looking back at it, with its ups and downs, now that it has worked its way through?

GP: It's been a wild ride. For those of us in our office, especially those who have been there for some time, we often ask ourselves, how did we get fooled? You know, here we are working for government, a bureaucracy. We're supposed to be moving paper from the in-basket on our desk, stapling the upper left-hand corner, and putting it in the out-basket. How come we're chartering aircraft, and taking photos? How did our jobs get exciting? The other day we sponsored a rock band at the state fair because they had a link to burn barrels by playing on old steel drums. These were supposed to be boring jobs; where did we go wrong? That's been the running joke in our office, that it hasn't been boring at all.

MM: I imagine that's a good thing.

GP: It is a good thing. It's a very good thing.

Rules to Breathe By

An interview with Melissa McEachron
August 19, 2004


McEachron

Position held at time of interview:

Environmental Planner, Air Quality Program, Washington State Department of Ecology, since 1991

Education:

- Juris Doctorate, Gonzaga Univeristy, 1989
- Bachelor of Business Administration, Gonzaga University, 1986

Maria McLeod: Melissa, what was the first project you worked on after joining Ecology's Air Quality Program in 1991?

Melissa McEachron: My first project was to develop an interim policy for what was then called open burning, now called outdoor burning. I worked on the policy, and then we immediately went into rulemaking for the outdoor burning rule. As that was going on, I started working on the agricultural burning rule. The difference between the two is based on a designation in the statute. The Legislature established a specific program for burning as part of agricultural activities. We had restrictions and a kind of program on the books for the outdoor burning rule, but for the agricultural burning rule, not as much. In fact, the regulations started out as a grass seed turf rule. We started there because grass seed was the only crop burning that was regulated, and then we expanded to almost all types of crops, especially field crops, and even a few other kinds of agricultural burning activities. So I was doing double duty, two sets of rules at the same time. For agricultural burning, we wound up doing an interim rule. When it became effective, in 1995, it was the first true, complete agricultural burning program for the state of Washington.

MM: What is agricultural burning?

McEachron: Agricultural burning is the burning of the residue after harvest. With what we call grass seed burning, the seed is harvested and sold for growing lawns, and what's left over is the grass. So that residue can be fairly substantial, and it had been a historical practice since probably about the '50s, certainly in the '60s, to burn after harvest. The state started to regulate it a bit in the '70s because the level of smoke in the air during late summer really bothered people. Grass seed field burning in the Spokane area would come in late August, maybe early September at the latest. So typically in early September, you would have close to 30,000 acres going up in flame and the smoke would travel. Of course, you try not to hit populated areas, but it's very difficult. And Spokane County is one of several counties where there's a lot of grass seed. You cross into Idaho, and they have a couple of counties where grass is grown for seed. In Whitman County further south and the Columbia Plateau area, certainly the Columbia Basin where there's irrigation, there's a lot of grass seed there. It's a good, lucrative crop for growers—a good rotational crop.

MM: Well, I imagine 30,000 acres going up in smoke every year is pretty noticeable no matter which way the wind is blowing.

McEachron: Yes, and with the wheat fields burns there are several hundred thousand acres, and that would be additional to that because the grass seed burning in Washington was about 60,000 acres. So, they were looking at quite a lot of particulate matter in the air.

MM: How had grass seed burning, and agricultural burning in general, been regulated up until these new regulations came into effect, and how were the previous forms of regulation inefficient as a means of control in the face of environmental and human health issues?

McEachron: Burning grass seed field residue required a permit as far back as 1977. The Legislature also included other provisions, including one for a pro-rata reduction of acres burned and one that allowed Ecology to certify an alternative to burning. Where that alternative is available, burning is no longer allowed. For burning other crops, like wheat, a permit was required starting in 1991-'92. The provisions of that statute are different from the grass seed field burning provisions.

MM: I want to hear more about issues related to agricultural burning and outdoor burning, but first, can you explain a bit about the process of rule writing?

McEachron: In rule writing, you're taking words in a statute and making a program to work with them. That program has a reason for being, but often not all your shoelaces are threaded right, let alone tied in a way that allows you to know exactly what you should be doing. There's always that pull between the lack of flexibility and no predictability. Very rarely are you able to accomplish things simplistically. There's always a little bit that has to be worked out. So, you usually know what you're supposed to do, but often there are several ways to accomplish things and little guidance in terms of how you get it done. In the case of agricultural burning, we were working with a citizens' group on one hand, who wanted stricter regulations, and the growers on the other, who wanted the same level of flexibility they'd always had. I think that's why people sometimes say rule writing is a thankless task, because you're always in the thick of an argument. In essence, often one group wants you to be more restrictive, and the other group wants you to be more flexible; so you're always having to weigh that—how do I make the program work, and am I in the right spot for the state? For those who aren't used to an adversarial world, it can be rattling.

MM: It seems as if you've got to dispense with making people happy to a certain degree.

McEachron: You learn to be satisfied with the process. It's reflected very clearly in rulemaking. It doesn't help when you have people yelling at you though. Citizens would tell me that I, meaning Ecology, needed to do something because the smoke was responsible for harming or killing their children. Growers would say I was responsible for harming their family members, forcing them from their land or doing the wrong thing. We got lots of calls on grass seed burning, and we had lots of public meetings where we would have to listen and weigh a lot of what was being said because there was often a point that, if you could move things slightly in a different direction, or find a way to be flexible, you might be able to move forward without jeopardizing the rest of what you were trying to do.

MM: In regard to agricultural crop burning, how is that done, and what does looks like?

McEachron: I was in the field when about 15,000 acres of grass seed fields went up in Spokane. When the acreage first went up, it looked like the pictures I've seen of an atomic bomb blast—a huge white column of smoke that's all consuming, moving up and out, and then it turns kind of brownish. Then there's a point where, depending on the angle, it looks gray. I remember taking pictures of it, a kind of time-series sequence. I was taking pictures of a silo, a series of photos in a time frame of about four minutes. I was close enough that I was looking up at the silo to get the picture. In the series of photos, you can still see the silo, with some haze right in front of it, and then there was a point where, within about three to five minutes, the silo is obliterated. You can't see anything.

MM: And this is something people in that area have been dealing with for maybe 30 years?

McEachron: Yes.

MM: So, when this agricultural burning is occurring, do people wear breathing masks? How do people usually respond?

McEachron: In Spokane, the local air authority instituted a two-week time period for burning. Some people do nothing. Other people increase their medication intake for that two-week period when burning can occur. When it would occur, it would occur really quickly, at least in Spokane County. If the air shed or the air currents were moving through Whitman County and Columbia County or anything moving on through, then Spokane was kind of the pipeline dump-off place or point. That could not be predicted because of the geography. So to answer your question, people either did nothing, or they upped their allergy medications. Some people were hospitalized due to respiratory problems. Some people actually left, but it was very expensive to leave and be away for such a time period.

MM: And I imagine people don't let their children go outside and play in that environment?

McEachron: It really depended on where you lived. If things went very well, it would all be over and done with and probably dispersed within a 48-hour time period. Usually, not everybody in Spokane County burned at the same time. It really depended on the wind flow. Now, depending on where you were living, some people were getting blasted with smoke from Idaho one day and Spokane the next. That was just awful for them, and those issues began to weigh heavily as the population also increased, especially between Spokane and Coeur d'Alene, Idaho, and then up a little bit maybe to Sandpoint and kind of back over. Complaint lines started to get more and more calls. Then there were studies that showed the burning could be handled differently. The agricultural research, was, of course, hotly debated.

MM: What did the process of writing rules to regulate agricultural burning involve?

McEachron: After developing the agricultural burning policy, the interim rule, and then the comprehensive rule, I had an opportunity to actually go to regional offices and implement the rule in our Eastern Regional Office in Spokane and the Central Regional Office in Yakima. That meant putting everything in place, overseeing it all and going out and talking with county council as part of the public outreach element. For most of the crop types, it was a new program. It was about how Ecology was going to implement it, how hard we were going to be with enforcement right out of the gate. We were developing the burn

permit and overseeing the development of the database. Certainly, in 1995, I wrote quite a few permits, and we did quite a hefty public outreach element since we were covering both the Eastern Regional Office territories and the Central Regional Office territories, and at that time all of the applications were coming to me. Because there was a fee involved, we also had to work out how that actually was going to occur because typically regional offices do not accept checks. So we had to work with our fiscal office over at headquarters to figure out how that would happen.

As I was working in the Agricultural Burning Program, there were several other things that were falling into place as well. By 1995, EPA was at the tail end of writing their rule—the scientific portion for their promulgation of the 2.5 standards. EPA has the responsibility to set standards—National Ambient Air Quality Standards—for various pollutants. Small particles or particulate matter is set by micron size. At the time, a standard of 10 microns was already in place. Scientific studies were showing that very small particles—which are the result of combustion activities—are breathed in and ultimately embed deep in the lung because the body's natural mechanisms do not always catch and remove them. The scientific studies were also showing that these finer particles, 2.5 and smaller, contribute to all kinds of health problems and diseases. Some of the studies that were used actually listed Spokane as one of the cities they were looking at because Spokane actually had a higher than average asthma rate.

In Spokane, it was a pretty harsh burning season for a lot of folks, and you could see it coming, especially through what I'd call "traffic letters" to the editor—you could see the issue bubbling. Also, the local air authority, the Spokane Pollution Air Control Authority, held a very well-attended and lively hearing on the issue in springtime because they actually regulated burning in their county, and that was a very big grass burning county. From the testimony at that hearing, you could see that there was mounting opposition to burning, and it wasn't just a few people. On the other side, growers were defending burning as a valid and necessary activity. Needless to say, there were many questions being asked, especially about permits and research into alternatives. Interestingly enough, we had permit information on grass seed field burning because that part of the permit, or, for that particular crop type, growers had been required to get a permit since 1977. So we had permit figures, at least 10 years worth, on how many people were getting permits. And the agricultural research scientists were starting to come into play with better studies on alternatives to burning.

MM: And is grass seed an easy crop to grow, I assume?

McEachron: To a certain extent, it is, and it certainly has a lot of benefits for the soil itself. The difficulty, of course, is when you burn off the residue. That's really sending a lot of folks into a less than great state, especially if you have any kind of breathing difficulty, and in Spokane County they actually were, at that time, regulating burning pretty tightly, and they really had only about two weeks or so to burn.

MM: Was this '95?

McEachron: In 1995, yes. Elsewhere it was not regulated nearly so much. It was more like, get your permit, and then once you're done with harvest, look at the conditions and burn at will. So, you could start to see a lot of things line up by the end of 1995. One of the

things that really started to heat up was the interest level of the Save our Summers group, which is a concerned citizens group.

MM: Who were they, and where were they based?

McEachron: t that time they were mostly based in Spokane and a few folks in Pullman. They began mostly as individuals who were either being smoked out, or they knew people who were suffering. Some of the information the Save Our Summers members were able to dig up and present was very helpful, and it influenced the Ecology director, who was then Mary Riveland, to reach the conclusion that it was time to regulate.

MM: What, besides Save Our Summers' findings, did you conclude were the main reasons that this industry required regulatory change?

McEachron: When I was looking at the dates and the history of the issue, I noticed that growers had been, for years, saying the same thing: We're almost there. Give us a chance. We'll regulate ourselves. For some growers, their grandfathers had been saying this when I was five; their fathers were testifying with the same words before some of the various hearings over the years at the Legislature, in the '70s. And, lo and behold, in 1995 the third generation of growers were saying the same kind of thing themselves. Then you had all the other parts coming into play. The science was there to say this is causing difficulties for folks, even if it's not showing exceedances. Save Our Summers was putting pressure on Ecology, saying, look, we've been waiting 30 years for something; it's time.

We had new provisions that reduced the number of acres that could be burned by mid-1996. Since we had used an emergency rule to do that part, we had to begin work on the full-blown rule. At the same time, we were holding a symposium on alternatives to grass and field burning, and we had to deal with what was going to be the best way to comply with new parts of the Administrative Procedure Act and how to structure the Small Business Environmental Impact Statement (SBEIS). We contracted with a private sector firm to do the SBEIS. We then had to do a cost/benefit analysis, which we ended up contracting to Washington State University. Not only was this cost/benefit piece going to be difficult to do for an agricultural subject, but this was going to be one of the first out the gate for Ecology, period. We had to figure out a lot of questions as we were marching along: Is the provision we were looking at fitting in with the allowed a pro-rata reduction? How much of a percentage should we pick to reduce? On what basis? Those kinds of issues. We had to make a lot of decisions in a very short time frame, and while doing that, our interim emergency rule on agricultural burning was challenged in court on many issues: statutory authority, abusing or misusing agency authority, arbitrarily picking the one-third figure for the acres that could not be burned, and so on. I remember having to have a discussion among the Air Quality team members on this issue, sort of drawing straws on who would attend which hearings. We had already entered the hearing stage for the full-blown grass burning rule, which we called the reduction rule, and, at the same time, someone had to be in court over in Thurston County in Olympia on the emergency rule. I remember the Spokane hearing was going to be held the same day I was in court with our attorney for the Air Quality Program on the emergency rule. Since the emergency rule was upheld, we could turn our attention back to the full-blown rule. After hearing on the full-blown rule, we then had to write the results of the hearings into a concise explanatory statement and make sure

that the economic analysis was in legally defendable shape. We had a lot of steps to get all of this to work at the same time.

MM: Is writing the summaries of what happens in court and at these hearings part of making your provision available to the public?

McEachron: It's part of that; it's also that we need go through that process to ensure we have covered the major issues, especially where the advice is from various groups on opposite ends of the scale. Because, ultimately, the director has to adopt the rule, and directors need to know about the issues. Also, as public comments were coming in, we were logging in the comments. We have to do that to respond to the comments as part of a concise explanatory statement.

MM: Who brought suit against Ecology?

McEachron: The growers who were impacted, and it wasn't all the growers; there were specific plaintiffs.

MM: And when the emergency rule was challenged in court, was that also growers?

McEachron: Yes, and it was about the same group.

MM: What was at issue, or what was challenged?

McEachron: The lawsuit on the reduction rule came through in early 1997 and, of course, the grower plaintiffs had hit several legal areas: statutory authority, each of the economic analysis pieces, SBEIS, cost analysis and benefit analysis. The lawsuit also challenged what we looked at for the state Environmental Policy Act, and it challenged a few other areas. Starting in 1997, growers were not allowed to burn two-thirds of the acres planted in grass sold for seed. There are costs to the grower to remove the residue if they don't burn it. The growers were fighting the cost increase and to return practices to the way they were. Of course, as a lawsuit comes through, you have to prepare how you're going to respond to the lawsuit; so that hit probably about February-March of 1997. In the meantime, we were moving along, looking at how we were going to implement the rule that we had just adopted. This rule still allowed about 20,000 grass seed acres to burn each year.

We hit November-December of '97, and the director of Ecology, then Tom Fitzsimmons—certainly with the governor's support—said we needed to do more. And, based pretty much on the studies of alternative growing processes that had been done, he said, we're going to look to rulemaking on the other provisions of RCW (Registered Code of Washington) 70.94.656 specific grass burning statute.

MM: You mentioned alternatives to grass seed burning. What did your research show in that regard?

McEachron: In addition to the pro-rata reduction part of this statute, there is also a section that says Ecology can certify an alternative to burning and where this alternative is reasonably available, no burning is allowed at all. At that time, there was quite a bit of research into the alternatives to burning, some of it coming from Oregon, some of it coming from Idaho, some of it coming from WSU. Those three places are probably the largest research sources.

So, in November of 1997, we were entering the rulemaking phase all over again for the certification process. That process was really more of a review of alternative methods to burning and a determination on Ecology's part, still staying within the parameters of what we have to do for agency rulemaking in general. We had a very short time period. In fact, we filed the document, called a CR-101, in late December 1997. A CR-101 gives the agency an opportunity to announce it is looking at rulemaking on a specific topic. This CR101 outlined the process Ecology would follow, when we anticipated filing a rule proposal and who to send information to. By January 1998, the director felt we had enough info to determine an alternative to burning and continue with rulemaking. So we worked to pull a document together to formally catalog the alternatives, the analysis, and the decision that an alternative existed. The alternative coming out of this process is called Mechanical Residue Management. Once an alternative was identified, we had to comply with all the rest of the rule writing parts all the way through.

That was a hectic schedule because that really reduced the rule adoption time frame and the lawsuit on the other rule was still going. At that point, I was actually heading back over to Olympia to live, and I was working out of our program development section. I had lots of people working at different tasks, and I had several leads working on different areas. We held hearings in May, and we finished and adopted the rule, the director signed it. The rule was effective in June 1998.

MM: So this new rule brought about a kind of certification for a new way to approach this?

McEachron: Right, and a new approach, because the department had certified an alternative to burning. So, for the growers, the change probably came on pretty quickly because the first year it was one-third less burning under the emergency rule, and, by mid-1997 it was yet another one-third less. So, we reduced the acres burned by two-thirds overall. With the certification rule, burning was brought to a halt. There were a few exceptions and some of the exceptions had time-frame limitations. So in about a three-season time frame, let's say a four-year period, the acres burned went from 60,000 to 20,000 to 3,000. If the grower didn't quite get a burn in 1996, especially if they were outside Spokane County, it wasn't going to occur. That was a significant change.

While we were doing all that, of course, we were preparing for the lawsuit. The lawsuit was scheduled for trial in July, and that was on the first grass burning rule—the two-third reduction one.

MM: So if the second lawsuit was to supersede the first, wasn't that first lawsuit a moot point by that time?

McEachron: No, because the lawsuit used much of the same framework for both rules. I don't know the growers' strategy, but certainly they were not giving up, even though the rule in the lawsuit wasn't the one they had to comply with in 1998. So, we went to court on the two-third reduction rule, and we prevailed. You can't help but think that's a pretty good win for us, although I would say an expensive, time-consuming win.

After the results of the lawsuit in 1998, for the most part growers complied with the certification rule, and, as I mentioned, there were some provisions where they could continue to burn under limited circumstances. On an interesting note, one of the growers went too far with trying to stretch the "limited circumstance" provisions. When he couldn't

get permission to burn, he did anyway. The grower was fined and then appealed the enforcement action. The grower sued on the penalty and threw in a few arguments that challenged the basis for the decision, which, you got it, is a lawsuit to a rule. This time the lawsuit was on the certification rule and that lawsuit actually went to court in 2004 and is, I believe, now at the Court of Appeals in Spokane. It was around this time frame, like the summer or fall of 1998, that Save Our Summer actually became a much more organized, solid group.

MM: And what direction did Save Our Summers take then?

McEachron: By fall of 1998, a certification rule was in place, and Save Our Summers had asked us to take a look at other types of agricultural burning. We have to note that there are two specific statute pieces that are different, one written in the '70s that has additional spin-offs for grass and field burning. The overall agricultural burning program piece was written as part of the 1991 state Clean Air amendments. Save Our Summers wanted us to reduce all the other burning by the same methods we used for grass seed fields. At that point, we were looking at more accurate permits and did not see that it was time to be reducing other types of burning, certainly encouraging alternatives, certainly doing a whole lot to promote other options, but the research for other crop types was not at the same level. So, Save Our Summers sued us in federal court for violation of the Clean Air Act in 1999 because we were allowing for other agricultural burning, other crops. So, you're talking about a lot of wheat.

MM: So, you'd done the work on the grass seed burning and this was another issue?

McEachron: Right. It takes a couple of years, in federal court, to get to trial. That trial took place in 2000-2001. At the District Court level, Ecology prevailed. Then Save Our Summers appealed to the Ninth Circuit of Appeals, at which point Ecology and Save Our Summers agreed on a settlement, the results of which included Ecology affecting some rulemaking specifications in 2004. So, I'll be starting to take a look at rulemaking one more time on this particular subject with what I would call the settlement agreement in mind. Now, the growers, seeing the lawsuit coming in 1999, worked with the Department of Ecology and Department of Agriculture and the Washington Association of Wheat Growers. The wheat growers themselves, as part of that group, agreed to reduce emissions from agricultural burning by 50 percent over a six- or seven-year time period. So, we looked at how we were going to, as an agency, make that happen. So, obviously, we've been tracking the acres burned since that occurred.

The EPA also kicked in during that time frame and gave us a tremendous amount of money to work on a much more sophisticated permitting system for agricultural burning. Today, if you're burning, you're required to not only get a permit that has specifications, but you also have to check the day that you're burning, and check with the individual daily burn calls, which are based on meteorological conditions. So in a 10-year period, we've made a huge step. Technologically, we've advanced greatly in being able to predict how much smoke is in the air and when we're going to allow burning. We can do that on a county-by-county basis. Now, if you're a grower, you can sign up to be part of the list-serve e-mail lists, and you can check the daily burn calls by e-mail.

MM: What kind of technology is used in the fields to monitor the air and to determine whether or not it's safe to burn?

McEachron: There were several advances in air dispersion technology. Prior to that, you almost had to be a meteorologist to get things to work and figure out whether it was a good burn day or not a good burn day. Five or six years ago, unless there was an air quality emergency called and Ecology was shutting down all kinds of activities in Eastern Washington, you could burn. It was along the lines of holding your finger up in the wind to test it. Typically, there was no burning on weekends, no burning at night, but other than that, there weren't day-by-day burn calls. It just wasn't technologically feasible. Now things are different. There are additional monitors set up in different places and computer programs to identify wind conditions, and what would happen to the air shed if we let X number of acres burn. Now it's a much more sophisticated program, and growers are complying greatly, and it's certainly more advanced than I predicted it would be.

MM: What do think precipitated the growers' agreement and willingness to comply?

McEachron: Early on I think it was fear, because there was a very active citizens group monitoring and watching, and they weren't afraid to sue individuals. You can see that now in Idaho. Idaho did not take the same path that Washington state took, and there's an ongoing federal lawsuit in Idaho over the same issue and several individual growers are named as defendants. They're being sued by the Idaho's version of Save Our Summers—Safe Air for Everyone. Fear can be a pretty good motivator. I also think there were some real advances in direct seeding in many of the areas. Now you've got direct seeding machines that can actually pinpoint and get through residue better.

Overall, it's been quite a ride working on these rules. It has been stressful and knuckle biting. The time frames have been really tight and the lawsuits, endless. But the up side is that we accomplished something really positive for a large number of people living in Eastern Washington -something others had not accomplished in over 30 years. And now crop residue is being looked at as a resource, not just a byproduct or waste.

MM: Are other states looking at what we've done and adopting our regulations?

McEachron: Yes, in some different ways. Oregon, in 1989, after a very massive car crash, which had occurred as the result of poor visibility, started working on a similar kind of program. Some of the studies, alternative studies, have come from that. I think that preceded what Ecology started working toward. As for other places in the United States, Louisiana has a program, but I still think they do quite a bit of burning. With other states, some of them just don't burn because it's not a typical practice for them.

MM: I've come to realize that these rulings generated a bit of controversy and a lot of press. Can you tell me what that part of the experience looked like, felt like?

McEachron: The certification ruling was groundbreaking. I remember being at headquarters when Director Fitzsimmons actually made an appearance in Spokane, making a public announcement on this particular rule. We'd gone over the script with the public information officer. I wasn't in Spokane to hear it, but someone was nice enough over in the regional office to hook up a

conference phone system, so I actually could dial a number and listen to it. And it was a live press conference. It was really something.

MM: Was some of what you had written said by Tom Fitzsimmons in response to the press conference questions?

McEachron: Yes. In fact, I went over the press conference questions quite a bit with the public information officer, regarding what we thought would be asked of him. Tom Fitzsimmons was a very eloquent speaker. He really was able to digest information fairly quickly and put it in his style of speaking, and it always came off quite well. Not everyone may have liked the content of what he had to say, but in his speaking manner, I didn't hear anything negative. So hearing that press conference, that was really something—a kind of turning of the corner.

Overall, it's been quite a ride working on these rules. It has been stressful and knuckle biting. The time frames have been really tight and the lawsuits, endless. But the up side is that we accomplished something really positive for a large number of people living in Eastern Washington—something others had not accomplished in over 30 years. And now crop residue is being looked at as a resource, not just a byproduct or waste.

Chapter Twelve - Unnatural Disasters

The Department of Ecology's Spill Prevention, Preparedness, and Response Program is the agency's first response unit, addressing a variety of emergency situations, from tanker oil spills on Washington's waterways to methamphetamine drug lab cleanups. Formed during 1990 and 1991, the Spills Program works to prevent, prepare for, and respond to hazardous situations that threaten public health as well as plant and animal life in Washington state. Interviewees for this chapter offer first-hand accounts of those events that have not only made headlines but also put Ecology's expertise to the test, highlighting the evolution of Ecology's spill response capabilities, from the formation of the agency to the present. The development of related policy and the passing of significant pieces of legislation that led to the formation of the Spills Program are featured as an integral component of Ecology's authority and ability to protect Washington's environment and its citizenry.

Chapter Advisor: Jon Neel, Legislative Strategic Planner, Spill Prevention, Preparedness, and Response, Washington State Department of Ecology

Interviewer: Maria McLeod

The Right Response

An interview with Jon Neel
August 25, 2004


Neel

Position held at time of interview:

Legislative Strategic Planner, Spill Prevention, Preparedness, and Response Program, Washington State Department of Ecology, since 1991

(Employed by Ecology since 1976)

Education:

- Post-graduate work in Environmental Science and Engineering, Department of Civil Engineering, University of Washington, 1976
- Bachelor of Science in Microbiology, University of Texas, El Paso, 1972

Maria McLeod: Jon, I understand that the Spills Prevention, Preparedness, and Response Program formed during 1990 and 1991, but that your career with the agency began in 1976. What kind of work were you doing early on, and how did that work evolve into working on issues related to spills?

Jon Neel: I joined the Department of Ecology in 1976, working in the Water Quality Program. In 1978, I transferred to the Industrial Section, which regulated the pulp mills, aluminum smelters and oil refineries, and I had just picked up the Washington Public Power Supply System nuclear plant construction projects. I was an engineer and inspector, working mostly with pulp mills, but I was also Ecology's first nuclear power plant inspector,

working at the Satsop and Hanford nuclear power plant construction sites. It was during that time, working for the Industrial Section in the late '70s, that I first responded to oil spills. Back then, most oil spills were handled by the regional offices, except if a spill happened at an industrial facility. Then, the industrial section, out of headquarters, worked on those. But when I began responding to spills, I was sent out with literally no training, no equipment—not even a pair of gloves. It was learning by fire. During this time, spill response was managed on an ad hoc basis, always as, "other duties as required." There just was not enough funding for a dedicated spill response program. When you had raw sewage discharging into water bodies with shellfish—where people were eating raw oysters and kids were playing—and you're an agency manager in the Department of Ecology in the early years, where do you put the next dollar? Do you put the next dollar in burning garbage dumps where plastic is burning and blowing downstream to the local school, or do you put that dollar into oil spill prevention and response? So, it was a matter of setting priorities.

MM: When you say you were responding to industrial spills, what kind of spills were those?

JN: For example, tank trucks that overturned on their way to the nuclear power plant construction site with a couple of thousand gallons leaking down the ditch, or spills by contractors who were loading trucks and left the valve open, and oil or toxic chemicals went over land and down into a creek. Fortunately, many of the spills were over land and did not always get into the water, making them relatively easy to contain, without huge environmental impacts.

MM: You mentioned you weren't wearing gloves, or other protective gear. Did you worry about your own health when coming into contact with any of these toxic materials?

JN: Well, the good news is, I had a really good background in chemistry. I had a minor in chemistry and had taken many graduate level environmental toxicology classes. I have a very good fundamental understanding of the chemistry of hazardous materials and I'm able to make pretty good judgments about potential health effects.

MM: And when you said these things were pretty easy to contain, how do you contain 2,000 gallons flowing into a ditch, or flowing off the road? What did you do?

JN: You try to get the nearest dump truck full of sand, typically from the local county road department, and dump it right down slope from where the spill was going, then use another dump truck load to sand the road. This does a couple of things: One, it helps to absorb some of the oil, but it also keeps traffic from sliding off the road. Having somebody get injured or killed from an incident like that is one of the last things you want to happen.

MM: So, does Washington State Department of Transportation, WSDOT, come out simultaneously to assist you?

JN: On the major highways, yes, but back in the late '70s, WSDOT had relatively little interest in environmental protection. It was a different era, a different context. They had a single focus, primarily the mission of road construction, bridge construction, and traffic flow. It was only when the situation was really impeding the traffic that they became interested in helping us manage an incident. So, we worked with the tools that we had. At that point, we had little money ourselves to hire contractors. We had to beg and plead and

coax and threaten responsible parties into doing the right thing. By threaten I mean, we let them know that we might have to take enforcement action against them. So, it was reasonably effective, except that a lot of times the response actions were slower than they should have been. You really need to contain oil spills immediately to have an effective removal.

MM: What if a spill doesn't get contained, and it seeps into the ground? What's the environmental impact?

JN: All surface waters and all groundwater are public waters; so, even if you have a stream running through private land, the waters in that stream are public waters, and the groundwater beneath your land is a public resource. In terms of environmental impact of overland spills, a small amount of oil will be absorbed by organic material in the surface layers of the soil, and eventually be degraded. If it's a small amount of pure petroleum product without any additional toxicants, the impact probably wouldn't be huge. However, you don't want kids playing in it. If there is a significantly large spill, then a fraction of the oil will be driven into the groundwater by precipitation.

The questions we dealt with in the 1970s were issues such as, is that groundwater significantly contaminated, and what is the current use of that groundwater? We also need to protect groundwater for potential future uses. So even if this isn't currently being used for domestic water supply—for example, there's not a drinking water well on the site at present, but there might be one two years from now—we still need to think about those things. That's the reason why it's important that the soil be removed and remediated when you have significant oil spills on land.

MM: In regard to your work in 1978—that era—as an inspector and spill responder, what was the agency process and protocol for contacting employees to respond to a spill?

JN: Basically, I was on call 24 hours a day, 365 days of the year, in case there was a spill at one of the industrial facilities for which I had the lead. I had my own life to lead, and I didn't put my life on hold to do this work, but when I got a call at home, I tried to do the right thing. The right response depended upon the spill. If I found out it was 5 gallons of oil spilled on the ground, and that's what the industry reported, and the local fire chief had gone by and looked at it, and it wasn't going to go into the water, then I could deal with it over the phone, or later. If I trusted the responsible party and had an independent verification, I could ask them to remove the soil, dig it up and haul it off for proper disposal–so a lot of the spills were handled over the phone. Back then, we didn't get paid for our overtime, and we didn't get paid for standby, and we didn't have any specialized equipment. We just did the best we could, using our common sense and trying to find practical solutions.

MM: I'm imagining your work in the late '70s: You do your work all day, all week, and you come home, have a separate home life, and then you get a call. You're not going to get paid overtime, you're not going to be compensated, but yet you may choose to get up and leave the house and drive out there to see what's happening, and then you may have to respond to it. Tell me, was everyone happy about doing this?

JN: I think it was pretty frustrating that we had to do that without any compensation. Most of the team members for the Industrial Section had a very strong work ethic. We were

working hard, typically nine hours a day, getting paid for eight. On top of that, notification for spills most often came in at about 5 p.m. A spill might have happened at any time during the day, but that's the point at which the company who caused the spill would finally come to the conclusion that, No. 1, the spill was worse than they had thought, and, No. 2, that they were going to have to notify somebody, and it's 5 o'clock and they want to go home. It's amazing, the percentage of spills notifications that came in right at the end of the day.

MM: So, did you stay with the Industrial Section, doing inspections and handling spills?

JN: Actually, in 1981, I moved to the Southwest Regional Office to be a District Engineer, working in Southwestern Washington on water-quality issues, hazardous waste sites, and solid waste problems. I moved from the Industrial Section to Southwest Regional Office because it was an exciting opportunity, a really great team, and an interesting workload. It was possibly the best team that's ever been put together in Ecology, before or since. There were a lot of really good people at the Southwest Regional Office. Both the engineering folks and the inspectors were all very dedicated, very hard working, always looking for practical solutions, not overly idealistic, and were very successful at moving the ball dramatically forward in Southwestern Washington—from Pierce County down to the Columbia River, whether it was industrial wastewater management, sewage treatment, solid waste landfills, hazardous waste cleanup sites, or hazardous waste management. We were dealing with companies, counties, and municipalities from a multimedia regulatory standpoint.

MM: You mentioned that, with the exception of the larger industries, which were handled by the Industrial Section, most spill response was handled by the regional offices. I'm curious how it was handled and what your experiences were like there?

JN: The first day I showed up for work at the Southwest Regional Office, they said, "Oh, by the way"—and by this time it was 3:00 in the afternoon—"you're on the Spill Response Team. Let us show you where the van and the key are because you're on call tonight." In theory, I probably had some rights to say no, but it wasn't presented as an option, and I wasn't about to say no. I wanted to be part of the team. Spill response became a bigger issue when I joined that office because the person on call was then responsible for spills from Tacoma down to the Columbia River, a large area, rather than just a small number of industries focused on by the Industrial Section.

MM: What were some of the significant spills you responded to during the time you were at the Southwest Regional Office?

JN: First of all, I worked for the Southwest Regional office for seven years, and for four of those years, from '84 to '88, I was regional supervisor. I hadn't been a regional supervisor very long—I was building my team and we had a lot of work, a lot of pressure, and a whole lot of balls in the air—when I got a call at home while I was eating dinner with my family. This was March of '84. A tanker called the *SS Mobil Oil*, owned, of course, by Mobil Oil, had grounded on Warrior Rock near Portland, Ore., in the Columbia River. It was reported there was quite a lot of oil coming out of the tanker. I immediately called a couple of other people to try to get some support, especially an internal organization managed by a guy named Harry Tracy, who was responsible, as part of the agency's contingency plan, for spills

of oil and hazardous substances. The plan called for Harry and another person to take the lead in managing major and catastrophic spills.

MM: Did you know immediately if it was catastrophic?

JN: I knew immediately that we had a huge amount of black oil moving down the Columbia River. This was heavy viscous fuel oil that coats birds, making them unable to clean their feathers. It's very difficult to clean off beaches, a very damaging type of oil.

MM: Is it called crude oil or bunker C?

JN: This was a heavier fuel oil than bunker C. In fact, this oil had a density about equal to that of water and only floated sometimes, and sometimes didn't float. It was moving downstream with the current, not just on the surface of the river, but also as submerged globules. Anyway, I was unable to get any support from headquarters, so I picked up my "go" bag, got in the spill response van, made the notifications I needed to make, and headed down to Portland where a command post was being setup by the Coast Guard.

Today, things would be dramatically different in that situation. We would be mobilizing, say, about a 20- to 40-person team that would be leaving at the same time that I was leaving, back then, by myself. At that point, I didn't have any training for managing major spills. I showed up on-scene, in the middle of the night, at the Coast Guard Offices in Portland and began the process of trying to work with the Coast Guard, who was the predesignated federal on-scene coordinator for the incident. I was the state on-scene coordinator for Washington state. Bruce Sutherland was the state on-scene coordinator for Oregon, and William "Bill" Park was the on-scene coordinator for Mobil Oil.

MM: If this was happening in Oregon waters, how did it fall within your jurisdiction?

JN: You are correct that the spill originated in Oregon waters, but there was oil going all over Washington state shorelines, and the fish and wildlife in and on the river were co-managed Washington state fish. In this particular spill, the Coast Guard on-scene coordinator was not particularly interested in what the states thought.

MM: What was the dynamic and the relationship between Ecology and the Coast Guard? I imagine there was some struggle over jurisdiction and terrain, the Coast Guard being more responsible for marine waters and marine safety. Was that the issue?

JN: Yes, if you looked at the incident from the perspective of the Coast Guard commander who was the on-scene coordinator for the feds. We had a tanker on the rocks. This could have threatened maritime commerce in the Port of Portland. He didn't want to disrupt commerce. The Coast Guard's primary mission, as included in their mission statement at that time, was commerce. That was No. 1. The environment was hardly to be found in the mission statement. The Coast Guard's perspective was, we have a tanker on the rocks, and you folks from the state don't know anything about salvage, and this is a maritime issue; it's a spill of potentially national significance. So there were turf and control issues. It was very challenging from the get-go. Helicopters from the news networks were already starting to circle the vessel, and the spill was on national television news that evening and for the following week.

MM: What kind of collegial effort went into effect between you and the other responding agencies in order to get the ship off the rocks with a minimal amount of damage, and how did responders work with the media?

JN: I assumed, going into it, there would be a certain degree of collegiality. Regarding the media, the decisions made inside the command post were not public; the media actually did not have access to decision-making. In fact, neither did the states. When the key decisions were being made, it was Bill Park and the federal on-scene coordinator in a room by themselves, making decisions.

MM: Shouldn't the decisions have been made between the Coast Guard, you, and the on-scene coordinator from Oregon?

JN: Yes, these days the incident would be jointly managed in a unified command. Decisions are now made through a consensus process that protects the environment as well as the economy. Now we are much better prepared. But, continuing with the story, salvage was the key issue at the early stages of that incident. We needed to get the vessel off the rock as soon as possible in the safest way possible. Industry often has the greatest expertise in salvage. It was their vessel. They knew the characteristics and design of the vessel, and they brought in salvage experts. With industry paying for the salvage and having so much riding on the outcome in terms of costs—natural resource damages and civil penalties—they were in the lead on the salvage issue. However, the final decisions and approvals all should have been made through the unified command. The Coast Guard has a lot of salvage expertise, but actually now Washington state has a lot of salvage expertise, as we have a number of master mariners on staff. But even back then, there were still a lot of decisions about salvage that should have been made collaboratively, such as, when would the vessel be pulled off. How would the vessel be pre-boomed in case there was, as Bill Park called it, "a burp" of oil when the vessel was pulled free from the rocks? How would we prepare to capture that oil? How would we manage that, and how are we going to manage media communications, as we were managing shoreline and wildlife protection?

MM: Two questions. How did the tanker run up on the rocks, and how many gallons of oil were spilled? Do you remember?

JN: In terms of cause, some maintenance had recently been completed on their steering system. You've got to remember, this was a single-hulled ship with one engine, one rudder, one propeller. So, even though it was a highly reliable system, there was little redundancy in the system. What happened was that a single retaining pin came out of their steering linkage. A wire that was supposed to keep the pin in place had not been installed during the maintenance process. So, as this tanker was making its way up the river, the captain suddenly lost 100 percent of the steering. Rather than having a soft landing on a muddy shoal, which would have been the most probable scenario, he had the bad luck of running up hard aground on Warrior Rock. The cargo tanks on the tanker were immediately holed.

The salvage plan included bringing oil barges up alongside the tanker and mooring them so that the oil cargo could be off-loaded into the barges to lighten the ship in order to eliminate the release of oil and to raise the ship higher in the water. This was done in coordination with the Corps of Engineers who operate Bonneville Dam. While they were lightening the vessel, they actually reduced the flow in the river slightly, so that the ship would stay hard on the rock and not lift off suddenly and unexpectedly. So, after stabilizing the oil release,

they raised the floodgates on the Bonneville Dam and let a lot more water go. This re-floated the tanker off the rock. They actually had to pull it off because it was hard aground. This all happened in the middle of the night, which is not something that should have happened.

Let me tell you a little more about the decision-making process that resulted in the freeing of the tanker. The day after I arrived at the command post, I talked with the Coast Guard commander and Bill Park, letting them know what actions Ecology, and the state departments of Fisheries, Wildlife, Parks, and Natural Resources were taking as a result of the release. I requested that Ecology be consulted on all major decisions related to salvage and cleanup. I said that I wanted to be involved in the salvage discussion, not the technical elements of how it was going to be salvaged, but about making sure we were prepared for any oil releases during the salvage process. I wanted to make sure we were well prepared for the inevitable release of oil, and they said, sure, we'll involve you and keep you informed before we make any major decisions. Then I was told confidentially, by a very concerned Coast Guard lieutenant, that the SS Mobil Oil was going to be lifted off the rock late the following night, or early in the morning when it was dark, so that no helicopters or media, or natural resource trustee agencies would be aware when the vessel would be pulled free. According to the Coast Guard lieutenant, the purpose of the night salvage was not to ensure safety or effectiveness, but to make sure that, if there was a large release or any problems occurred, it would not be visible to the public. So, I went back into the Unified Command meeting and talked to Bill Park and the Coast Guard commander and said, "I understand that you're going to do this. I don't think this is appropriate. I think it would be just as easy to do it at first light the next morning when you'll be able to manage the incident better with plenty of light, and you'd be able to manage the salvage better, place the salvage crew at less risk, and be able to contain any potential releases." Bill Park and the Coast Guard commander said, we're not going to do it tonight. Don't worry about it, we will let you know before we attempt to re-float the ship.

So, I went back to my motel room, got a good night's sleep, got up the next morning, and of course, at roughly 3 that morning, they had done exactly what they knew all along they were going to do—they re-floated and salvaged the tanker. Ultimately, approximately 200,000 gallons of heavy oil were released as a result of the grounding. That volume was determined through a very thorough investigation completed by Ecology.

This was really a turning point for the Department of Ecology in many ways. It was also a turning point in our relationship with the Coast Guard. This incident led to Ecology becoming active co-managers of major spill responses with the Coast Guard. The Coast Guard came to appreciate the fact that we had a lot of resources and expertise in our waters, and that we would be able to offer a lot of help in managing cleanups. Also, with respect to the *SS Mobil Oil* incident, the director of Ecology and the governor got directly involved with Coast Guard senior management and asserted state jurisdiction, and this

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helped Coast Guard senior management do the right thing. The commander who was the on-scene coordinator for the feds was replaced, and the person who replaced him began to work actively with us toward common goals.

MM: When you say it was a turning point for Ecology, what organizational changes did this spill on the Columbia River prompt for Ecology?

JN: When everybody in our organization watched the national evening news and saw the tanker on the rocks in the Columbia River, and they heard my pleadings and the pleadings of others involved in the response that more resources needed to be applied to the incident, it became clear that we needed to be better prepared for this kind of major incident. The incident sowed the seeds for the changes that took place in our organization and in our relationship with the Coast Guard and industry over the next six years. The SS Mobil clearly set the stage for effective and cooperative responses to the tanker Arco Anchorage grounding in Port Angeles in 1985, the Nestucca oil barge spill in 1988, and the state's reaction to the Exxon Valdez grounding in 1989. The legislation that came out of that era gave us the authority and funding to build the dedicated and effective spill prevention and response program we now have.

MM: What legislation are you referring to?

JN: In 1986 there was legislation that resulted from the *Arco Anchorage* tanker spill. The *Arco Anchorage* grounded hard in Port Angeles in December of 1985. This was the year after the *Mobil Oil* spill, and, again, this was one where national media was involved. The Southwest Regional Office was managing the spill and was able to bring a much stronger team to this incident, although it was still inadequate by current standards. Remember that that these spills were still managed by staff who had other full-time jobs, typically as water-quality inspectors and engineers, who had other deadlines, and with a spill, everything had to be put on the back burner; so it was still a very difficult time.

Nestucca oil barge, which, in December 1988, collided with it's tug, Ocean Service, spilling 231,000 gallons of heavy fuel oil into Puget Sound.

As a result of *Arco's* 239,000-gallon crude oil spill in Port Angeles, the Legislature passed concurrent Legislative Resolution 19, which established an oil spill advisory committee. That oil spill advisory committee came out with a number of recommendations, some of which were implemented, some of which were not probably taken as seriously as they should have been.

MM: Was there money to go along with it?

JN: No, no real money. It was really a study to help the citizens of Port Angeles, primarily, think about how spills should be managed and how to respond to spills in the future. There were a lot of other spinoffs from the *Arco Anchorage* spill. For one, we conducted studies to determine the natural resource damages that resulted from that spill, estimating how many birds, clams, oysters, and other critters were destroyed. As it turns out, the cost of the studies exceeded the amount of the damages that we were conclusively able to document. This was because many of the damages were impossible, or nearly impossible, to quantify. As a result of those studies, legislation was passed in 1989 with House Bills 1853 and 1854, which established the state's natural resource damage assessment methodology.

We now have a natural resource damage assessment compensation table, from which we can look at the habitat in which a spill has occurred, the volume and the type of product spilled. This results in a numerical dollar-per-gallon valuation that allows us to go to the responsible party with a damage assessment based on the volume of oil spilled and a dollar-per-gallon damage estimate. Our natural resource damage assessment program set national precedence and has been copied, to some extent, by National Oceanic and Atmospheric Administration (NOAA) as well as other states. That's one of many cases where the Department of Ecology has been at the cutting edge of environmental regulation.

MM: So, tell me about what happed after you left the Southwest Regional Office and rejoined headquarters. I see that you returned in 1988, which was still a couple years before the Spills Program was actually formed. In what capacity did you join headquarters, and what was the status of spill prevention, preparedness, and response at that time?

JN: I was recruited to move back to headquarters by Greg Sorlie, the manager of a division—what was then Ecology's Central Programs. He asked me to manage the Enforcement and Spill Management Section of Central Programs. My management responsibilities included the statewide policy on enforcement, the statewide spill response policy, the Washington Conservation Corps, and the agency's safety program. At that time, the agency was still structured in what was called a "functional alignment," and all spill responders continued to report to the regional managers. The agency now has a "programmatic alignment," where regional personnel report to program managers in headquarters, not to regional managers as they did in the past. So, the upshot was that I did not have line authority over regional spill response personnel at that point, but I did hire a guy named Jim Oberlander to work for me in headquarters to help me develop the program, because he was, at that time, a premier spill responder in the state. So we began the early stages of building a good policy base for having a stronger statewide Spills Program, which was something that was now a higher priority for the agency. However, there was still no direct line of authority because, for example, in January 1988, we had a spill called the *MCN-5 Barge* oil spill. That spill resulted from a tank barge operated by Olympic Tug and Barge, which spilled 70,000 gallons of heavy oil near Shannon Point at

the entrance to Guemes Channel adjacent to Rosario Strait near the San Juan Islands. This spill was managed by a gentleman named Craig Baker from our Northwest Regional Office. He was a guy who would go out and get his hands dirty, very active, very good at managing small and medium spills, but this one was a major spill. It became very clear at that point, that we needed to adapt the organization to have stronger centralized management, particularly when we had to manage big spills.

Then, two days before Christmas in December of 1988, a barge called the *Nestucca* broke free from its tug, *Ocean Service*, as it was being towed over the Grays Harbor bar. As the tug captain was trying to recapture the barge, there was a collision that resulted in a spill of 231,000 gallons of heavy, persistent fuel oil. We were able to "fingerprint" the oil through chemical analysis and confirm that the oil reached beaches all the way from the Oregon Coast to Vancouver Island and into Puget Sound, all the way to Admiralty Inlet. The chemical fingerprint was based on samples that I took after boarding the barge with the Coast Guard and interviewing the *Ocean Service's* Captain, John May, after it was towed into the mouth of the Columbia River. We took the broken end of the towline and had a professional metallurgist complete a chemical analysis and electron microscopy of the cable. We also had a piece of the towing cable broken in a press to see how much it had been degraded from the rated capacity from when it was new. We did research to find out where that tow wire had been manufactured and what kind of quality control had been completed on that tow wire. I managed the investigation with the Attorney General's Office, and our professional investigator's report stood the test of federal court.

This was one of the first major spills in the nation where the entire incident was jointly managed through a unified command, consisting of the responsible party, the Coast Guard, and the state environmental agency. It had only been four years since the SS Mobil spill, and we had made amazing progress in that time.

Based on the evidence developed from our investigation, the federal judge affirmed our assertion that the responsible party had been negligent by causing the incident. This negligence finding broke the federal limit of liability and ensured that the state was reimbursed for its response costs, natural resource damages, and for the penalty we issued. This was one of the first major spills in the nation where the entire incident was jointly managed through a unified command, consisting of the responsible party, the Coast Guard, and the state environmental agency. It had only been four years since the SS Mobil spill, and we had made amazing progress in that time.

MM: And was that information also used in terms of preparedness and prevention for what becomes the kind of inspection work you do on similar vessels?

JN: Yes. That was a good case study. Washington state has highly sensitive and valuable natural resources that are much greater than almost any other coastal state. We have thousands of miles of shoreline and rely very heavily on them for everything from commercial fishing, shipping, recreation, tourism, and private shoreline property that is valued as much as $10,000 a linear foot. So the damages from a spill can be very high. The

good news is that the state of Washington has always been at the forefront of coastal states in trying to protect its waters.

MM: What happened, in terms of legislation, as the result of the *Nestucca* spill in December of 1988, and then, three months later, the *Exxon Valdez*?

JN: As a result of the *Nestucca* spill in December of '88, Chris Gregoire, who was then director of the Department of Ecology, worked with Richard Dolan, who was the deputy minister for Environment Lands and Parks in British Columbia, to establish the States/British Columbia Oil Spill Task Force, and we began to establish a broader coastal partnership. The first meeting of the Oil Spill Task Force was in Seattle on March 23, 1989, the day before the *Exxon Valdez* ran aground. So we were trying to look at how we were going to cooperatively manage international and interstate spills, when the *Exxon Valdez* ran aground. Everything changed at that point.

MM: What changed?

Volunteers and Ecology staff participating in wildlife rescue efforts resulting from the 1988 Nestucca oil spill.

JN: Everything, from federal legislation, state legislation, to administrative changes, and organizational changes—a wide array of actions were taken over the next two-plus years. These spills helped to push innovative state legislation. House Bill 2242, which passed in 1989, established requirements that vessels transiting state waters have proof of financial responsibility—in other words, insurance. The *Nestucca* oil spill demonstrated that we needed to require that vessels have insurance before they come into our waters. Then Senate Bill 6701 passed in '89, establishing a Washington State Maritime Commission, which formed an umbrella oil spill response organization. So, a foreign-owned vessel coming in from, say, China or Japan, could be required to have spill response capability. In 1990, the Legislature passed House Bill 2494. That ground-breaking legislation was sponsored by House Environmental Affairs Committee Chair, Nancy Rust, a Democrat, with strong leadership from the ranking Republican committee member, Representative Jim Horn, who later became a senator. So strong bipartisan support developed for this legislation, which established Ecology's Spill Preparedness and Response Program. Note that I did not include the word, "prevention." This legislation gave us authority to require that large commercial vessels over 300 gross tons, and large marine oil terminals that transfer large quantities of oil, have oil-spill contingency plans. Industry was required to prepare and submit their plans to the Department of Ecology for review and approval, and required that the companies have a spill response contractor on retainer, in case a spill were to occur. Spill response needed to be instituted immediately to contain and control the oil, otherwise the oil would go all over the place and make the cleanup and damage much more expensive. Representatives Rust

and Horn both agreed they would focus that year on oil spill preparedness and response, and would work on oil spill prevention the following year.

MM: So, this was in 1990?

JN: That's right. Then in July of 1990, the Oil Pollution Act, otherwise known as OPA 90, was passed by Congress. Then Director Christine Gregoire testified at congressional hearings, which helped shape the federal legislation. That was the turning point at which we not only began to develop our own program, with the leadership of the Legislature, but we began to shape national policy on many issues.

The following year, 1991, the Legislature, under the continued leadership of Representatives Rust and Horn, passed House Bill 1027. This added spill prevention to the mix of requirements, specifically, that tank vessel and oil facilities operators would have spill prevention plans. The thing that really drove this legislation home was the fact that not only did it have the tremendous momentum created by the Nestucca, Arco Anchorage, and the Exxon Valdez oil spills, but it just so happened that, in January of 1991, the U.S. Oil Refinery in Tacoma had a 600,000-gallon crude oil spill. Fortunately, that spill was largely contained by a tide gate on a ditch in the Tacoma tide flats. There was an incoming tide and the tide gate had closed, so not very much was released to Commencement Bay. We were very, very fortunate. Then, in February of that year, the Texaco Refinery at March Point in Anacortes lost 210,000 gallons of crude oil. We had oil in critical habitats near Anacortes and Padilla Bay. Fortunately, once again that damage was not as extensive as it could have been, but it helped to galvanize public opinion and motivated the Legislature to create the strongest state legislation in the United States. Even to this day, we probably still have the most comprehensive state legislation in the world.

MM: In what ways?

JN: The 1991 legislation recodified all existing state oil spill laws, and created the Office of Marine Safety and the Marine Oversight Board. The Office of Marine Safety brought a strong focus on vessel oil spill prevention. The Marine Oversight Board oversaw the development of the state programs, and monitored federal activities in this area. The 1991 legislation not only added spill prevention to the 1990 spill preparedness and response legislation, but it also funded it with a nickel-a-barrel tax on oil imported into the state of Washington. Specifically, the tax is assessed on the first possession of oil in Washington state at the rate of 5 cents per barrel—that's 42 gallons per barrel. Currently, 1 cent of that nickel goes to fund an oil spill response financial account that allows us to mount our own state-funded response. We can now hire our own contractors, and spend up to $9 million on cleanup, and then recover our expenses from the responsible party. We will always, however, continue to work through the unified command to cooperatively manage major oil spills in order to take mutual advantage of the great relationship we have with the Coast Guard to co-manage these incidents. But, if the state wants to cleanup a spill to a higher standard, we have the leverage now to go ahead with the cleanup and charge the company back for those expenses.

MM: Why would a private industry, or anyone else, need to assist with funding when you have this $9 million in your account?

JN: For example, imagine we had five miles of beach that we were working together to clean up through unified command—that's the Coast Guard, the responsible party, and the Department of Ecology—then, when our inspectors were out there walking the beach, what if, for whatever reason, industry said, it's clean enough, and they pulled their contractors off the beach, despite our saying no, we don't want you to do that. Without that funding, those contractors might be pulled off the beach, even if the local tribes, local government, local citizens, and state wanted a higher level of cleanup. We now have the ability to hire our own contractors, but it would likely be much cheaper for the responsible party to keep their existing contractors working to meet the state's cleanup standards. It's subtle, but it's powerful.

MM: What about situations where there's been illegal dumping and the responsible party is still at large?

JN: In the event we don't know who spilled the oil, or we do know, but they deny responsibility, or they are bankrupt, we can immediately mount our own response. We don't have to miss a beat. We can then worry about who's going to reimburse the state after we have begun the response.

MM: So, you've given a good description of the legislative process and historical events leading to the formation of the Spills Program, but I wonder, how did the structure of the Spills Program itself come into being?

JN: After the *Nestucca* and the *Exxon Valdez* spills, the Department of Ecology began a thoughtful, systematic, internal study of how the Spills Program should be organized. It was an independent evaluation, a ground-up review of what the existing program looked like and how we should be organized to deliver the best services. The study concluded, not surprisingly, that the Spill Response Program should be centralized like all the other programs and become a separate organizational entity within the agency.

Department of Ecology beach cleanup of oil-soaked sand resulting from the Nestucca oil spill, January 1989.

MM: And so what role did you take in the program after the 1991 legislation passed?

JN: I developed the contingency plan for bringing the *Exxon Valdez* into the Columbia River up to Portland for repairs; however, the vessel was eventually brought down to California. Of course, it did "burp" oil on the way down as it went into port in San Diego. We also hired an independent surveyor to inspect the *Exxon Valdez* while it was still in Alaska, to make sure it would not break up off our coast, and to determine if it was structurally sound to bring across the Columbia River bar and into Portland. So, once again, we were moving into the maritime field in a very thoughtful and assertive way during that time. Shortly after the creation of the Spill Program, I took a different role in the organization, as the Senior Policy and Legislative Coordinator for the Program where I am able to continue to help build the program today.

MM: While we're on the subject of marine safety and oil spills, I want to ask you a truly basic question—that is, why do we have so much oil traffic in Puget Sound, and why is oil so important to Washington?

JN: Washington state had, for many years, a small population, and energy needs were met through many different means. Since the '30s, Washington state has relied heavily on its hydroelectric resources and dams as its energy backbone, and cheap energy was critical to the economic development of this state. The availability of cheap energy eventually produced a lot of energy-consuming industries like the primary aluminum smelters.

The state does not produce any of its own oil. Prior to 1950, there weren't any refineries in Washington state and very little crude was transported into Puget Sound; however, in 1953, the Transmountain Pipeline was built to bring oil from British Columbia into Washington state, and that resulted in the Mobil Refinery being built at Ferndale in 1954. There's still not any oil production in the state, but it is the fifth largest refining center in the nation. It is currently the oil refining distribution center for the whole Northwest. For example, Idaho and Oregon don't have any refineries. Refined products are now moved out of Washington state by trucks, pipelines, oil tankers and barges to supply the Northwest and California.

MM: So, as oil traffic was to increase in Washington, was there an awareness that some preparedness needed to be in place?

JN: In 1970, the Washington State Legislature established the Department of Ecology from the Water Pollution Control Commission and other agencies. In anticipation of the oil from Alaska coming into the state, the 1971 Legislature passed the Washington Oil Pollution Act. This legislation provided the basic requirement that anybody who spilled oil was liable for damages, and could be penalized up to $20,000 per day for an oil spill if they were negligent. Twenty thousand dollars a day for environmental penalties in 1971 was huge. That was a powerful policy statement by the Legislature for that time. In 1975, the state passed the Tanker Safety Act, which prohibited tankers exceeding 125,000 dead weight tons from entering Puget Sound, required tug escorts for laden tankers, and amended the state's pilotage requirements. In 1978, a U.S. Supreme Court decision invalidated the state's ban on supertankers over 120,000 dead weight tons in a case known as *Arco vs. Ray*, referring to then-Governor Dixie Lee Ray; however, U.S. Senator Warren Magnusson from Washington state had that 125,000 ton requirement reasserted through the Marine Mammal Protection Act legislation.

MM: Was the formation of a Spills Program considered at that time?

JN: Actually yes. In 1975, the Department of Ecology was very concerned about the state's ability to respond to spills. The agency completed a study, and requested funding and authority to establish an integrated spill prevention and preparedness program. Unfortunately, there wasn't enough political support for it at that time, and that program, of course, would not be established and funded for another 16 years, in 1991.

MM: Did that not get funded because there hadn't been enough major spills in the area to create significant attention to the issue and put pressure upon legislators?

JN: Yes. I think they could say that they had done enough by requiring pilotage, tug escorts, 125,000 dead weight ton limit, increasing penalties, and having Ecology complete a series of studies on oil spill environmental sensitivity. In this study, all of the San Juan Islands and their shorelines were intensively mapped by Department of Ecology contractors to establish a baseline in the event there was a spill. A large number of studies were completed, looking at details such as, in a given square meter of the shorelines, what was the population and diversity of organisms? So if there was a big spill, we could have known what the baseline was. Then in 1978, there was another major spill. The *Amoco Cadez*, a Liberian registered tanker on the way to England, grounded on a reef and spilled 68 million gallons of oil and contaminated the entire coast of Brittany and France. That was amazingly influential in framing the worldwide view of oil spills. So that brings us back to the previous discussion we had.

MM: What are your present and future concerns regarding spills in Washington state?

JN: One of the greatest threats to Puget Sound and the coast right now is a major or catastrophic oil spill. It's interesting that the spill we had this past January of 2004, the Foss barge spill in Puget Sound, only spilled about 5,000 gallons of oil, but it received a lot of attention and, once again, generated legislative action with the passage of Senate Bill 6641 during the 2004 session. That legislation established a policy statement by the Legislature that the state has a zero-tolerance spill policy and required that the Department of Ecology do studies and complete rules that will require that oil transfers be pre-boomed before the transfer and that alternative measures be put in place.

That legislation established a policy statement by the Legislature that the state has a zero-tolerance spill policy and required that the Department of Ecology do studies and complete rules that will require that oil transfers be pre-boomed before the transfer and that alternative measures be put in place.

MM: What does pre-boomed mean?

JN: That means that, where it's safe and practical, industries transferring oil will have to place and anchor floating oil spill containment booms as a precaution in case there is a spill. The effect would be that, should a spill occur, at least a portion of the oil would be immediately contained.

MM: Like an apron?

JN: Right. Then it would be much easier to clean up. If, hypothetically, you were to loose 10,000 gallons and somehow you were to have it all contained within the boom, the damages to public and private property resources would be relatively insignificant. Without that boom, there could be tens of millions of dollars in damages and cleanup costs.

MM: I have one more question related to spill response, and that's about the Neah Bay Rescue Tug, which I understand is operated by the Spills Program. What is its function, and where does the funding come from to operate it?

JN: The Neah Bay Rescue Tug is an important part of our proactive spill prevention effort. Starting in spring of 1999, a rescue tug has been stationed at Neah Bay. It's pre-positioned to respond to vessels that lose steering or propulsion, or otherwise threaten Washington's outer coast or the Strait of Juan de Fuca. The rescue tug operates all the way from Port Angeles down to the Columbia River, a very large operating area. Currently, it's funded by vehicle registration fees. The Department of Ecology has a competitively procured contract with Foss Maritime, which has stationed the tug, *Barbara Foss,* at Neah Bay for about two-thirds of each year, during the higher risk winter storm season. The tug is under contract to the Department of Ecology, standing by like a fire station. This is necessary because there are usually not any unencumbered, available tugs off our coast. If a vessel loses propulsion or steering, they're required to notify the Coast Guard. The Coast Guard will then order that vessel to obtain assistance. The only assistance that's usually out there is the Neah Bay rescue tug. So the private vessel owner can hire the *Barbara Foss* to provide the assistance required by the Coast Guard. The ship can then be towed or escorted to safe harbor, in Port Angeles, Victoria, or the mouth of the Columbia River.

MM: Why doesn't this issue fall under the Coast Guard's jurisdiction? Doesn't the Coast Guard have tugs?

JN: Well, this is a classic case where the citizens of the state of Washington have assigned a higher value to our natural resources and maritime economy than other coastal states. The Coast Guard maintains a national perspective. States like Alabama, Mississippi, Louisiana, and even Texas, have a different perspective than we have here in Washington state.

The Coast Guard, since the 9/11 attacks on our nation, has a new critical priority—protecting our state from the threat of terrorist actions. The Coast Guard is stretched by their different missions, and we're sympathetic to that. So the state has stepped up to the plate and funded the rescue tug, which helps our state maintain our prominent role in Pacific Rim shipping. In the year 2000, there were 6,391 separate cargo vessel transits and 822 oil tanker transits entering Puget Sound. There also were 5,300 oil barges that moved around Puget Sound. These are very large numbers. Our economy is dependent on Pacific Rim shipping. Again, just like our refineries, the state's ports are important national transshipment points for goods to and from the Pacific Rim countries.

Over 15 billion gallons of oil comes into Puget Sound every year in ship's cargo and fuel tanks, and only a small fraction of the oil is spilled. Obviously, our communities' spill prevention efforts are working. We have made a lot of progress since the late 1980s when hundreds of thousands of gallons of oil were being spilled into our waters every year. Our state is a success story—the result of industry, the federal government, Ecology, environmental groups, and others all working to reduce the number of spills. Of course we're still at risk. The next ship that comes in could be diverted onto the rocks in the San

Juan Islands by a boat full of kids, water skiing and running in front of the ship. The ship's captain may feel he has to ground it, rather than collide with a boat full of teenagers. There are a number of major incidents that could occur. We're still at risk. We still have to be vigilant. We still have to continue to focus on prevention.

Ecology's Environmental Medics

An interview with Ron Holcomb
July 29, 2004


Holcomb

Position held at time of interview:

Spill Responder and Hazardous Materials Specialist, Washington State Department of Ecology Southwest Regional Office, since 1994

(Employed by Ecology since 1980)

Education:

- Master of Science in Environmental Communications, University of Wisconsin-Madison, 1977
- Bachelor of Arts in Journalism, Natural Resources and Biology, Humboldt State University, 1976

Maria McLeod: A few people have commented that, within the Spill Prevention, Preparedness, and Response Program, the Spill Response Section is thought of as the more glamorous, the more exciting. I wonder, do you, as a spill responder, agree with that characterization? And if so, in what ways is working in this section more attractive than the Prevention and Preparedness sections?

Ron Holcomb: In the early days, before the Spills Program had formed, after-hours spill response was done voluntarily by various Ecology personnel. It was not well organized, and, in a lot of ways, people were on their own. Spill responders were perceived as cowboy types who didn't have a lot of guidance and made up the rules as they went. To an extent, that part of the job exists today. When we go out in the field on a spill, we're working with fire departments, police departments, and other local agencies. There's no cookbook on how to resolve every situation. We're problem solvers and risk takers who have to deal with these situations on the fly, and make decisions on our feet.

MM: How is the job different today?

RH: In 1991, when the Spills Program formed, spill response became much more organized and accountable. Today we have great equipment and vehicles, which, in the past, wasn't always the case. We have dedicated funding sources, and we get good technical and safety training. We've also been on the cutting edge of a number of things as we've evolved, especially when it comes to the cleanup of the methamphetamine drug labs, which started in the mid-90s and then skyrocketed. We began encountering situations and processes that nobody else in the country had dealt with, such as pressurized cylinders that

were being used for anhydrous ammonia during the production of methamphetamines. We pioneered a lot of techniques for dealing with drug lab wastes that we now have published and are on our Web site. We get calls from all over the country about certain procedures we do related to response and cleanup.

MM: In the early days of spill response, 15 to 20 years ago—1985 to 1990—when, as you said, spill response was voluntary and you were without the proper equipment and training, what was it like for you and others when you responded to a spill?

RH: Back in the old days, the spill responder, depending on the person going out, probably had an Ecology van that had some gear in it, and maybe some sampling equipment for taking field tests. They wouldn't have had the full compliment of PPE, personal protective equipment, for safely entering situations involving unknown chemicals. A lot of times Ecology responders were responding to midnight dumps of hazardous waste in drums or containers that appeared all of a sudden. Who we notified and who we were working with, and how we could actually resolve those situations was very different in those days, partly because we could not transport any waste ourselves. We just weren't in a position to do it. Most of the time, we would have to call private environmental cleanup contractors to do that work. Of course, a big part of the job then, and still today, is to have the company that's responsible—a truck on the freeway or a vessel or whatever—do the cleanup themselves or hire a company.

The big difference today, as opposed to the earlier years, is that, because we have means to transport the waste, we're more involved. Today, when we encounter midnight dumps of hazardous waste, we can complete the job, depending on the size, from beginning to end. We can do field tests, identify and properly package the chemicals, as well as properly dispose of it. We're more fully integrated from top to bottom in our capabilities, from the number of people we have to the kind of equipment, type of vehicle, and the amount of funding.

MM: The term, "spills," I've learned, seems to have become more of an umbrella term for a number of substances and situations to which you find yourself responding. Can you clarify, in terms of spill response, what you're prepared to handle, and what "spills" include.

RH: Our universe is large. Spills include any oil, hazardous material, or polluting material. Hazardous materials run the gamut from common household items that, once they get out of their container, become a waste and have to be dealt with, to all the petroleum products and all chemicals that are transported by truck and rail. It's anything that can be released as air pollution, and anything that is considered a pollutant to water, which is just about anything foreign that's not supposed to be in there. A lot of calls we get are a mystery—something's killing the fish, or they'll see some stain running into a storm drain, or there's something unusual floating out of a pipe in the water. Often that's all the information we have. We go out and try to identify if it's a problem and what needs to be done to take care of it.

Oil is one of our core responsibilities because the Spills Program really started with earlier oil spills, like the *Nestucca* oil spill in Grays Harbor in 1988, and then the *Exxon Valdez* spill in Alaska came right after, in 1989. The *Exxon Valdez* focused a lot of national attention. We were already focused here, regionally, from the *Nestucca,* and then the *Exxon Valdez* came along. Our other programs, such as the Hazardous Waste Management

Program and the Toxics Cleanup Program deal with aspects of these wastes, but if there is something in transit, or there's some emergency involving chemicals where people are affected, or there are evacuations, or there's the threat of immediate environmental harm, that's our job. We go in to stabilize it, and then, if there's to be a long-term cleanup, we may hand that off to another program within Ecology.

MM: Do you remember the first spill that you responded to, and, if so, what your role was at the time?

RH: Before I was a field responder, I was the agency's public information officer (PIO) for spill incidents. So, a lot of the spills I responded to were more over the phone than at the scene. As PIO, I talked to our people in the field, got information, and relayed it. I'd only go out in person on the bigger spill incidents or environmental events. The *Nestucca* was by far the biggest and most impressionable one that comes to mind, but there was another one, in the mid-1980s, involving a citizen who had a pretty large piece of property in Pierce County, who, over the years, had stockpiled all kinds of surplus military equipment—much of it was out of Fort Lewis—stuff that, over the years, had been dispersed, and some of it they didn't keep track of very well.

MM: You're not talking about ammunition, are you?

RH: No, not ammunition, but in addition to acres of everything—a junk yard—were semi-trucks and shipping containers full of drums. Nobody knew what was in those. So our agency became involved with this property owner who turned out to be very anti-government, as in, you can't come on my property. We had aerial photos of this, well, this compound, and there was concern about the safety of our people. Anyway, the situation reached a point where the place was gated off and locked, and the property owner refused to let Ecology come in. Obviously, this was a potentially dangerous situation. We obtained a court order to enter the property and access the chemicals that had been stockpiled. I got involved at that point as a public information officer because we were about to have a confrontation. We were going out there with the sheriff to cut the locks to go in. Of course, the news media knew about this. So here we were at the gate—the media, law enforcement, and Ecology. The Sheriff cut the chain on the gate, and then law enforcement escorted our folks in. We did a complete inventory, and then, of course, it turned into a longtime cleanup.

MM: I just realized the link between your work as a responder and your work as a PIO is that you're almost always on call, and you're in the middle of the action. I imagine you're one of the few people in the agency who knows the media from both sides, as a former PIO and now as a responder. What's the agency's policy on dealing with the media, and on being forthcoming with information?

RH: Every government agency is a little bit different, but I think the wise approach is to make oneself available to the media. That's pretty much been Ecology's standard operating procedure. Sometimes people on the technical side of our field can be nervous about dealing with the media, mostly because they haven't dealt with them and are afraid of being misquoted. Also, they don't want to make a mistake, or say something wrong, or have to worry that what they've said is going to get twisted. As a former PIO, dealing with the media over many years, I realize they have a job to do, and they're professional. I'm fortunate I have that background, and I understand what they want. We work for the

people; we're doing the public's work, and the public is entitled to know what we're doing. In a big spill, you try to funnel some of that information just because there are so many people working on it. We set up a joint information center with PIOs from all the different agencies responding to the spill, and we schedule and coordinate news conferences to get the right people together to deliver the information. In responding to spills, we're often working with private companies who might say, don't talk to any reporters who come down on the beach. But our philosophy is to tell reporters what we're doing, not to speculate or comment upon another agency's performance, but tell them what it is we're doing.

MM: What role does the media play, and how can media and their relationship with the public serve to help or hinder your work?

We need the media. They want the dramatic story, and they may play that up, but for the most part, they're an important component of what it is we do. Nowadays, with 24-hour access and news helicopters, Ecology has actually learned of spills from reporters because they're out and about, and they see something or receive calls from other eyewitnesses.

RH: In our field, 99 percent of the time the media is very helpful. In hazardous material incidents, for example, there may be road closures, or even evacuations. You need to get that information out, and the media is obviously in the best position to be able to provide it right then and in many different ways: TV, radio and newspapers. We need the media. They want the dramatic story, and they may play that up, but for the most part, they're an important component of what it is we do. Nowadays, with 24-hour access and news helicopters, Ecology has actually learned of spills from reporters because they're out and about, and they see something or receive calls from other eyewitnesses. Once in a while, they can be a hindrance, such as when we have areas that are off limits for safety reasons. Sometimes they're going to try to get in closer, but usually, if you have a good relationship, they're going to understand, hey, it's not safe to go in there. In 1991, we had a spill at the former Texaco Refinery in Anacortes—a big pipeline spill. It went out into the bay, and wound up both on land and in the water. A film crew from one of the Seattle area news station actually walked up a railroad access to get onto the property. The Texaco people called the sheriff. They were literally about to press charges and have them arrested. I was the PIO for Ecology at the time, and I said, no, don't do that. Don't do that because that will become the bigger story. Just tell them it's dangerous to walk down a railroad track; it's dangerous, and it's illegal. Find out what it is they want, and what it is they need. Then try to accommodate them. In that case, they were able to make a positive out of a potential negative.

MM: Your description of these incidents helps me to understand what, as a spill responder, you may be confronting when you arrive on the scene. I imagine that you are trying to coordinate not only the news media, but also potential volunteers; then you might have the responsible party, if that's been determined, other agencies, and then possible gawkers or accident chasers. All this and then you have the spill itself, which you need to assess and address. How do you prepare for such events, and how do you coordinate efforts to address the needs of all the various interests and parties involved?

RH: We do a lot of training, and we participate in drills. The most important element, if it is an incident of any size, is establishing what we call the Unified Command System. The Unified Command System was developed to provide a consistent organization for emergency response nationwide. We use this response system on big and small incidents. When a big spill happens, we know what positions need to be filled, and what duties need to be addressed. Of course, it's always chaotic in the first 24 hours because you're integrating with other agencies, and the incident has either just happened, or it's still going on. First, you have to find a building for the command post. Often you've got to bring in additional phone lines as well as all your supplies and equipment, and your computers. So, that's something we plan for and prepare for constantly. There are a lot of forms and paperwork, too. There are all these different nuances with each incident, but we are well prepared to get these events organized fairly quickly. Essentially, you're taking the incident from the emergency phase, which is very chaotic, to the project management phase, where you've brought in all your resources and you're making specific assignments and planning ahead for the next day. You want all parties to know what they're doing. Then you're documenting it, getting information on display boards, showing where the spill is and what needs to be done.

Believe me, it takes a lot of people to do that for big oil spills, but we regularly train with the oil companies: the big ones, the refineries, and even some of the smaller ones. So, we're pretty well positioned. The Coast Guard is the same way. We get to know a lot of the people through the drills as well as during the actual incidences. Each spill is different and unique, and you never know what's going to happen.

MM: Would you say you're similar to a M.A.S.H. unit, mobile triage?

RH: I do see spill responders as kind of environmental medics—we triage about 330 calls per month statewide. We're asking, how big a deal is it? Does it really require us to travel to the scene, or can we get somebody else? Can the fire department check it out, or the local health department? Ninety percent of the spill reports we're responding to are small, requiring two to four Ecology responders working with either the fire department or other local officials. So, on a day-to-day basis, we're fielding a variety of calls and complaints. You never know what you're going to encounter when you head out there because the callers don't often give good or complete information. The rule of thumb is to multiply the size of a reported spill by 10, because if someone says, "Oh, it's only 10 gallons," you go out to what you thought would be 10 gallons and it's 100 gallons, and there's oil everywhere. It also depends on who is reporting the incident—whether they want to minimize the threat or exaggerate it. Sometimes it's the opposite. You'll go out and find it's really no big deal. So some of these calls are actual spills, and some are citizen complaints. You don't know if they've got neighbor wars going on, or if you're talking to a disgruntled employee or what, but we check to make sure we know what is actually happening. Then, on these bigger incidents, we are geared up the moment we get the call. We pick up and take everything with us, because who knows how long we'll be working at the site.

MM: You mentioned the Unified Command System. In the context of spill response, can you tell me how that system works and, procedurally speaking, what comes first, second, and so on, when you respond to a spill?

RH: I should preface this by saying, we're not first responders in the way the fire and police departments are first responders. For example, for the Southwest Regional office out of Olympia, we have seven responders to cover 12 counties. Getting to some places can take two, three, or more hours. The police and fire departments are going to be there first during a hazmat incident, but when we do show up to a truck accident or whatever, it's usually one or two of us out of one our regional offices.

MM: So when you say the first person showing up may be the fire department, does this mean they are part of this Unified Command System?

RH: Typically, they're going to be triggered by 911 if that's how the first call comes in. For example, if it's an offshore oil spill, the fire department's not typically going to be involved. But if it's a spill on land, or a hazmat incident within a local area, local officials will be called first. They are there to ensure public safety. They may isolate the area, and that's all they do, keep people away until we show up. We are what's called the "state on-scene coordinator." First we access the situation to determine if it's still leaking, and then decide what can be done to stop the leak. Our goal is to minimize environmental damage and the threat to public health. Then we're also determining if the spill material is contained. Do we need to put out some spill response equipment? Are there any other hazards? Is there a breathing hazard? Do we need respiratory protection? These are all response issues that must be addressed early on.

If the media is there before we get there, we'll go in and tell them, we can't talk to you right now because we don't know anything. We'll get back to you in 15 minutes. So we focus on the immediate issues, knowing that, OK, we're going to be updating some reporters, so we're gathering information. We're also there as investigators because we have an enforcement component to our job. If you spill oil or hazardous material in the water, it's a violation of the law, and there are very stiff penalties. So, we're trying to figure out how this happened. We've got to collect evidence, take pictures, interview witnesses on small incidents, and collect environmental samples. When you're the first one there, you literally have to do all of that. In an ideal world, you'd divide these tasks so that all you're doing is investigation, or all you're doing is the response, or collecting samples. That's what happens over a period of time if it's a bigger spill, as more and more people join in. So that's why I say you wear these many different hats, because you're the one out there on the scene, you're in charge. You're in charge until somebody of more senior authority comes in, and then you'll assume another role in the United Command organization.

MM: How does participating in spill drills enhance your ability to respond?

RH: There are a number of different drills that happen for oil spills and hazardous material spills. We just had a huge exercise up in Seattle with British Petroleum and Olympic Pipeline. It was tabletop drill for an oil spill, meaning there was no equipment deployed. There were close to 200 people in the command post, simulating the management of a large spill for 30 straight hours. A number of Ecology people participated, and we were involved in the design of it, and, of course, we'll be evaluating it. During these large drills, Ecology staff role-plays in various roles, including command safety, public information, governmental relations, operations, planning, logistics and finance. In this drill, for example, my role was in SCAT, the Shoreline Cleanup Assessment Team. If oil hits the shoreline, SCAT members organize how we go out, draw sketches of segments of the

shoreline, describe what kind of beach type it is, and tell people where the oil is. It's a full-time job. In the early days, like with the *Nestucca* incident at Grays Harbor, people on the team would draw it out freehand. I was recently looking at the one made for *Nestucca*, and it shows the shoreline, the cliff, the oiled log. These days we have forms we fill out with all kinds of information. It's become very sophisticated as a result of all the experience people had, literally, around the world on oil spills.

Then we have hazardous material incident drills, and those are usually run at the local level. There are LEPCs, Local Emergency Planning Committees, and they're required under law to be established. I don't know if you remember the Bhopal, India incident of 1984, where Union Carbide—a large, American pesticide plant—had a big accident that killed over a thousand people, and many more were permanently maimed. Then a chemical incident in Institute, West Virginia, sent more than 100 people to the hospital after the Bhopal tragedy. Those incidents were a real wake up call in the U.S. It was like, man, we've got all these chemical plants we know nothing about. So that triggered the community right-to-know law, meaning those industries have to make known to agencies like ours, and local governments, what chemicals they're producing or using during production. LEPCs are set up to get agencies together—the local agencies, fire, sheriff, and the businesses—to meet with the state agencies and have drills on hazardous materials. We participate in those, and, if it's on a designated state highway and it's a transportation spill, the State Patrol is designated by law to be the incident commander and Ecology handles all the environmental issues. If it's a hazardous materials issue on the water, Ecology is the on-scene commander.

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MM: What about acts of terrorism? Is Ecology the responsible party in responding to acts of terror that impact the environment?

RH: Since 9/11, there are a lot more drills involving terrorism and weapons of mass destruction. That's something we're involved in, too, because there would usually be an environmental cleanup component to that. There's a facility in Anniston, Alabama, where a lot of us have gone to train, where we work with live agents, seran gas and other chemical compounds. So we were involved with that and radiation training. We've upgraded and purchased radiation monitoring equipment. So, weapons of mass destruction is another area that, like it or not, we take part in.

MM: You mentioned methamphetamine labs, particularly that the calls and responses to those had risen. When did responding to illegal drug labs become a feature of your job with Ecology, and how do methamphetamine labs pose an environmental threat?

RH: In 1994-95, there were roughly 40 to 50 meth lab cleanups in the state of Washington for the entire state in a year. Then in '96-97, the number of labs discovered by law

enforcement started taking off. The year 2001 was the absolute peak. So, for example, we went from 40 to 50 labs statewide per year to 150 per month. There's been a downward trend since 2001, but it's still high, about 110 labs a month. Unfortunately, the Southwest Region happens to be ground zero, because Pierce County, which is in the Southwest Region, is the worst in the state for meth labs. As for the environmental threat they pose, that's due to the chemicals involved in the process of creating the drug. These include flammable solvents, corrosives, and poisonous gases, and the people who are making these drugs are not chemists. So meth labs are often found when the fire department responds to a fire, and finds the source is the meth lab. So there's a public health threat that way. The other threat is related to dumping. Obviously, meth cooks are doing something illegal, so they don't want to get caught, so they dump their chemical waste everywhere and anywhere.

MM: Is there ammonia involved in this process?

RH: Well, one of the methods, called the Nazi method because it was developed in Germany during WWII as a way to keep soldiers awake, uses anhydrous ammonia, a common but potentially deadly chemical used extensively in agriculture. Meth cooks use ammonia in cylinders that aren't designed for it—primarily propane tanks, like the 5-gallon propane tanks that people have on their barbecues. The ammonia corrodes the brass valves so that they can leak, and ammonia can kill you if you get a big enough snootfull. It can blind you or damage your respiratory system. It's a very dangerous substance. A lot of the other chemicals can be purchased at any hardware store. So when we're responding to a meth lab, there's typically gallons and gallons of this stuff, these solvents—acetone, toluene, white gas—which are very flammable, and also dangerous to breathe. Acids and other corrosives such as sodium hydroxide or lye are used. Meth cooks make their own hydrogen chloride gas by mixing rock salt with sulfuric acid. They do that in any kind of glass, plastic, or pressurized container. Once they're done cooking, they go out and just dump their waste. We've encountered dump sites everywhere, from very rural areas, national forests, state parks, to urban areas, such as dumpsters behind businesses. We came upon one dumpsite in front of Puget Sound Hospital in Tacoma, right in front of the emergency room entrance—two tanks of ammonia and a whole bunch of chemicals were dumped near the door.

MM: How did responding to meth labs impact your job, not only the scope, but the process itself?

RH: Prior to meth labs, we didn't do as much hands-on work with chemicals. In the early to mid-'90s, spill responders typically would go out, assess the lab, and call a state contractor. We'd call them up, and they would come in and package the chemicals, do all the paperwork, and haul them off, because Ecology wasn't equipped to really do that. That was fine when there were 40 or 50 a year, and the cost for a contractor to do it could range from as low as a couple of hundred dollars if it was very small and simple, $10,000 to $20,000 for a larger lab. So, as the curve was going up, it was becoming very clear that our Spills Program was going to go bankrupt if we continued on this track. We just couldn't do it. With the average cost at about $2500 per lab, we realized we could probably do it as easily ourselves, for less money, if we just got a little more equipment, a little more training, and a few more people. So now Ecology disposes of the chemicals for nearly every meth lab. I think the average cost for us is like $600 a lab versus $2500 for a private contractor. Cleaning up drug labs helped us become much more hands-on with chemicals, which has

helped us in other hazardous materials incidents. We now have true regional hazmat teams. A city fire department, if they have one, is going to get about 10 to 15 calls a year, and that only includes the big cities like Tacoma, Seattle, or Spokane. For some of the other areas we are, by default, the hazmat team for the rest of the state. So, in our evolution, the meth labs bumped us up even more in sophistication and what we can do.

MM: What percentage of your job is dedicated to dealing to methamphetamine labs?

RH: It's probably a little more than half. We've received dedicated money, so we've actually hired people specifically to do drug labs. At first we responded to every call; now we've actually trained local law enforcement to assist us. The police go in, make the arrests, then they do the fingerprinting, taking small chemical samples back for the crime lab to make their case, and then we get everything else. We take all the bulk chemicals, package them up, and haul them away. But there are so many meth labs now, we've purchased chemical storage lockers for law enforcement agencies. So, for the small labs, we've trained them and given them equipment. After they do their processing, they can put the waste in buckets and then they transport it to the storage locker. When there are three, four, or more labs stored up, we go up and take all the accumulated waste away and properly dispose of what's in the locker. Today, with four people working for three to four hours, we were able to process 11 labs' worth that had been stockpiled. So that's hugely efficient. It would be very time consuming to respond to every lab and dumpsite. There would be complete burn out for spill responders.

MM: How did this fall under your jurisdiction, versus another state or local agency?

RH: Back when there were only 40 to 50, or fewer, meth labs across the state each year, the big counties that have health departments probably could have responded to them. But a lot of this stuff was in rural counties, and they have no resources or capabilities. So, when the Model Toxic Control Act passed for the Toxic Cleanup Program, Ecology realized, well, we've got all this money to clean up hazardous materials, so we could probably handle the meth labs, too. That fell to us and the Spills Program. Then, as the problem grew, it was, why did we sign up for this? Most states don't do it this way. They either rely on the federal government, or they just say we don't have any money, and who knows, it's up to each individual county to deal with it. So, we have a very efficient way of doing it. But I don't think people knew, early on, what they were signing up for.

MM: Why have the number of methamphetamine drug labs risen so dramatically within the past 10 years?

RH: We've talked to law enforcement a lot. We work with undercover cops every day, and what they tell us is, this drug, methamphetamine, is one of the most powerful drugs around. Initially, when someone takes it, it's a rush greater than cocaine. It's unbelievably, highly addictive. The other thing is, if you know what you're doing and you've got the ingredients, you can make near pharmaceutical grade methamphetamine in 20 minutes. It's relatively easy to do, and with the Internet there are recipes everywhere. Of course, once people become addicted, it takes over their lives. We go to labs where there have been small children, and it's horrible, because the house is a mess, and the parents, all they care about is getting methamphetamine. They forget about everything—their own wellbeing, their kids. It takes over their lives. It's heartbreaking, and that's why treatment programs are obviously very important. It's a multi-pronged approach, and we're in on the bad side,

focusing on what's left over from the production of the drug. It's also used by women as an appetite suppressant. That's how so many, even housewives, start on it, for that. It's not just the down-and-outers. There are lawyers and people from all walks of life on it. It's rampant. It's obviously an epidemic in our state. It started in California, and it's spreading across the country. Missouri and Iowa are facing the same the problems we did two or three years ago.

MM: At what point, in the early days, would you be going into the labs, and how did you coordinate with the police?

RH: In the early days, we used to be involved with pre-raid planning. Of course, we would also be behind the SWAT team, and we'd be there for hours before. It came to a point where we realized we couldn't be doing that all the time. So, the process changed, and then the police would call us and say, OK, we're going to need you in about two hours; so we'd arrive after they were done. Sometimes we'd be there and people would be in handcuffs still, or in the car, or they would still be talking to them. There could be fire trucks, police cars, and, still, people would be driving up, asking if Joe's there because they wanted to buy some meth. You'd be thinking, are you out of your mind?

The scariest incident we had was when there'd been a fire at a lab. We went back the next day after everything cooled down. It wasn't a house, but an outbuilding behind the house, but the police knew there were still some containers and tanks that were too hot to handle that night. So, we go back the next day, with law enforcement. There are still some suspects at large, and we're driving up, following the police, to go to the house because there are people still living in the house who aren't under arrest, like the mother. So, we're on our way, and somebody rides by on a bicycle, and all of a sudden one of the police cars turns around and whips over. It's one of the guys they're looking for. So, they cuff him. He's in the police car, and we show up at the house with the police who knock on the door and say, hey, we're here with Ecology. Of course, a lot of these places are junk yards with old cars in the yard and dilapidated buildings. It's a mess. So we're with a detective, walking through the ashes, literally, and there isn't much there. There's little bit of the wall still left, and there's this piece, like canvas, hanging down. The officer lifts it up, and it turns out one of the suspects is hiding under there, and he has a gun. We're 2 feet away, and it's like, oh my God. Then this guy's mother opens the door, and dogs are barking, and she's screaming, don't kill my son, don't kill him. Of course, the cop can't see behind him. So, he's nervous because he doesn't know what's going on, and so he was yelling both at her and this guy.

So, that's why, when we go to labs, we always take law enforcement with us. When we go to dump sites, there's usually nobody around, but if we're going to a lab, we have a law enforcement escort because there are some scary places.

MM: Are labs happening more in urban places or rural places?

RH: Everywhere—motel rooms, nice houses, junky houses, trailer parks, parks, and out in the middle of nowhere, where people set up tarps out in the woods. Meth labs are everywhere, unfortunately.

MM: Is there an end in sight?

RH: No. I don't think in the near future we'll see an end to this. The numbers have plateaued a little bit, but there are still an incredibly high number of labs. The emphasis each county places on it depends upon their budget. When law enforcement goes after cocaine and marijuana and narcotics, they usually get assets out of it, whereas methamphetamine labs are a loser for law enforcement. With the other, law enforcement will take the cars, and that's part of the deal. With meth, there's no value to anything, plus it's chemically contaminated, so even when stuff is absolutely fine, it has still been part of a meth lab. So, they don't want to take any property, which they could then sell. But with cocaine or marijuana, no problem, they'll take the assets. So, if you wonder why isn't everybody going after meth, it's because it is such a cost-intensive effort for law enforcement, and because of the personal protective equipment they have to have, and the danger with the people involved, due to the guns. There are guns at just about every lab.

MM: I wonder, getting into these situations, dealing with hazardous materials, what precautionary actions do you take to ensure your safety and the safety of others?

RH: We actually have a program called Safe Trac, which stands for Safety Training and Competency Program. Spill responders at Ecology have to complete the program, and it takes the whole year to go through training and testing. We are actually tested on our competency at various parts of our jobs, from our legal responsibilities and regulations to the unified command, to working with local governments, to handling hazardous materials, to respiratory protection and other safety requirements. Every year we are certified so that we're competent to work in the field. We have very good standard operating procedures. So, when we go to a site, we have to access it and determine what level of personal protective equipment is needed. For example, do we need a full chemical suit, self-contained breathing apparatus, a respirator, or just safety glasses? Every site where we show up, if it's an unknown situation, or when it's known, even when it's a meth lab—there are certain procedures we take, and a site safety plan we fill out every time to go through it, whether it's two of us or whether we have fire departments or other agencies.

MM: What do you think is the most difficult part of your job as a responder? Is there anything you wish you could change about the job?

RH: What I like about it is the variety. Every day is different, and you never know what's going to come about or where you may go. The meth lab stuff has become old. We've just done so many; it's repetitive. Some of it is kind of risky with these pressurized cylinders, as you don't know if they're going to rupture or off-gas violently; so there are times when it's not a lot of fun. We're protected for it, but on a warm day like today, when you put on a chemical suit, it is extremely hot. You're sweating like a you-know-what. So those warm days, you'd rather respond to an oil spill on the water and take our response vessel out—we have boats we take out onto the water—versus having to suit up for chemicals, where you're like a turkey-in-a-bag in the oven. So that's kind of the down part. As far as what I feel is the most hazardous environment, you might be surprised. It's not at any of these meth labs or dealing with chemicals, but it's actually being on the side of Interstate 5 at an accident or a spill, because cars do not slow down, despite flashing emergency lights and lane closures, because people are in a hurry. That's where I feel the most scared on this job.

MM: On the flip side, what seems the most rewarding?

RH: For one, we get to see the immediate results of what we do. We're sort of, as I call it, environmental medics. When there's a problem, we deal with it immediately and stabilize it. In most cases, it's cleaned up within a day or so, or we've stopped something from getting in the water, or we've cleaned it up off the water. So, that's rewarding, whereas a lot of jobs in an environmental agency are so long-term. It may take years before you finish with a toxic cleanup site, or more; whereas, when we go out, it's to respond to something that's happening now, and we get resolution. Although we have our supervisors we can call, and we can page people at any time of the day or night, we're pretty much out there on our own, representing the agency. A lot of times we're wearing a white hat, helping local government or business deal with a problem. On the other hand, we also have this enforcement responsibility. So, we also wear a black hat. For the people who spilled, if it's something that could have been prevented, we issue pollution penalties right in the field. The penalties are usually $1,000, $1,500, or $2,000, which is the maximum depending on the kind of incident, and that's for not only oil, but for any pollutant in the water. That's been a great tool. It saves us so much time from having to go back and prepare a formal enforcement action where everything's typed out and sent through the mail. Instead, we can just write a ticket right in the field. Having that kind of tool available helps, because for people who aren't so willing to get things going, we can say, well, it could cost you $1,000 if you don't clean it up right now.

The other rewarding part of the job is that you've got to use your wits and make quick decisions. We're working with local governments, fire departments, and other businesses. It's very interesting and rewarding to work as a team. For me, the most interesting part is the variety. Our universe is so big that, even after 10 years, I'm still coming upon situations I've never dealt with before.

Keeping Oil Off the Water and Making Ships Safe

An interview with Stan Norman
July 23, 2004


Norman

Position held at time of interview:

Prevention Section Manager for Spill Prevention, Preparedness, and Response Program, Washington State Department of Ecology, since 1997

Education:

- Armed Forces Staff College, 1982
- Bachelor of Science, United States Coast Guard Academy, 1971

Maria McLeod: According to your biography, Stan, you've been with the program since 1997, now serving as manager of the Prevention Section for the Spill Prevention, Preparedness, and Response Program. Prior to joining Ecology, you were in the Coast Guard, stationed in Seattle, and, after retiring from the Coast Guard, you worked for the Office of Marine Safety before it merged with Ecology. What had been your experience leading up to your relocation to the Northwest?

Stan Norman: I had always tried to get assigned out here. It's very difficult. I was raised in the East, and the West always fascinated me, particularly the mountains and seacoast. I was finally transferred here by the Coast Guard in July of '89, seven months after the *Nestucca* spill and four months after the *Exxon Valdez* spill occurred. Prior to coming here, my Coast Guard experience had all been off the East Coast and on the Great Lakes. During my 22 years with the Coast Guard, I commanded two ships and had eight years of sailing. I retired from the Coast Guard in 1993 as the chief of the aids to Navigation and Waterways Management Branch for the Thirteenth Coast Guard District, which includes the states of Idaho, Montana, Washington, and Oregon.

MM: In regard to sailing in Puget Sound, compared to other places, what makes it unique?

SN: Each ocean and each area has its own attributes and some problems. In regard to Puget Sound, it's very deep, similar to Alaska. It's got some very tight waterways. There is little or no forgiveness, because the bottom is rocky. Some areas of the Great Lakes are like that, and some are soft bottom. It's just larger than most sounds and bays, except perhaps Chesapeake Bay. The Puget Sound is, again, deep and unforgiving if you get out of the channel.

Each ocean and each area has its own attributes and some problems. In regard to Puget Sound, it's very deep, similar to Alaska. It's got some very tight waterways. There is little or no forgiveness, because the bottom is rocky.

MM: What do you mean by unforgiving?

SN: The sea floor is very rocky. If you hit, it's going to open you up. You can run aground on a soft bottom sometimes without serious damage. There are two other things that make the Puget Sound unique: one is the volume of traffic, and the other is the international aspects of the traffic. Rules of the road are the accepted ways you behave in the waterways, just like we have on the highways. When you come inside the headlands in most places, you have inland rules. Out in the open seas, you have international rules, which are established by the International Maritime Organization, an arm of the United Nations. In Puget Sound, by agreement between Canada and the U.S., the international rules apply throughout. This is considered an international body of water for purposes of the rules of the road. It was just too confusing for people to go between Canadian rules and U.S. inland rules. So, in the early '80s the two countries decided to settle the issue altogether by just extending the international rules of the road throughout.

There's another difference between Puget Sound and other waterways. I won't call it political; it's more societal. That is, there's very little tolerance for pollution in the Northwest as compared to other areas of the country. Our most recent legislation occurred as the result of the Foss barge spill in December 2003. That was a spill of about 5,000 gallons that occurred during the overfill of a tank on a tank barge as it was loading cargo at Point Wells, just north of Seattle in Puget Sound. The resulting legislation clearly told Ecology that our goal should be zero spills—in no uncertain terms.

MM: What kind of environmental impact did the Foss spill have?

SN: Well, it occurred at Chevron's transfer facility in Edmonds, impacting areas right across the Sound. It impacted some tribal shellfish beds, mainly, but there are parts of the world where they wouldn't even have mounted a response for 5,000 gallons. It is just part of the cost of doing business in other parts of the world. In the United States it's not, but it still received many more times the attention than it would have in Houston, for instance.

MM: I'm interested in how your past experiences informed your work at Ecology and how those experiences helped to shape the Spills Program. Can you tell me about your experience with the Office of Marine Safety, which merged with Ecology in 1996 after the Spills Program had been formed?

SN: The Office of Marine Safety, or OMS, was created through the Oil Spill Prevention and Response Act of 1990, OPA 90. The first administration of the Office of Marine Safety, which was a unique state agency with about 28 people at its most robust, was very specifically targeted at vessels and on prevention. There was a little bit of preparedness, but basically it was a very targeted agency on vessel oil spill prevention. Most employees were people who had sailed as master or people who had sailed as chief engineer, people who would understand the industry that they were regulating. It was just getting going in 1993, and I was part of the first batch of sailors they hired to do vessel inspections and vessel plan reviews.

MM: Who, after the Office of Marine Safety was established, was responsible for spill prevention on state waterways, the Coast Guard or OMS?

SN: It was, and still is, shared responsibility. Basically, two events led to the creation of all the oil spill programs on the West Coast. For us, the *Nestucca* and *Exxon Valdez* spills really brought the point home, and caused the state of Washington and the province of British Columbia to rethink the oil spill prevention and response, and to revisit how effective the Coast Guard was in serving that function. Early on in '92, a year after OMS was established, yet not fully operational, it was tasked with a review of the Coast Guard tank ship programs. That was done in conjunction with the state of California, and it pointed out some inadequacies in the Coast Guard programs. As a result, there's been a tension between the Coast Guard and the states ever since, because they really couldn't deny it, coming on the heels of the Exxon Valdez. But nevertheless, it tweaked their pride and it really caused people to look very carefully at how effectively they were performing their roles, especially in spill prevention.

MM: Can you explain how OMS became part of Ecology through a merger in 1996, only five years after it began, and how that impacted who had the jurisdiction for spill prevention, preparedness, and response on state waterways?

SN: The so-called "sunset provision," for OMS, which provided for its cessation, was written into the law that created it. Facility prevention and response was vested in Ecology. The Office of Marine Safety was especially targeted on vessel prevention and a little bit of preparedness. The law seemed to reflect that there needed to be a small, dedicated agency to get the state started in this business, to overcome years of what was perceived as neglect by the Coast Guard's lack of effectiveness. The Coast Guard has changed a lot, but it's still very technically oriented, focused on perfecting the vessel as opposed to perfecting the crew. So with the OMS, the sense of the Legislature was, put this group together, let's get them

focused on human factors and then five years later and once they've got the program going, we can merge it back into a larger agency.

MM: Even though the merger was intended, wasn't it somewhat controversial?

SN: Well, the environmental community and advocacy organizations were opposed to the merger because they felt that Ecology would not pay specific enough attention to the vessel issues. That's what OMS had been created for, and they feared the attention would be diverted into other things. The history within Ecology of facility prevention, versus response, supported their concerns. There was very little attention paid to either preparedness or prevention. Response got all the attention, and emergency response is such a glamorous thing that people tend to focus in on that. In addition, prevention is almost impossible to prove. Measuring prevention is a non-starter. You can only use surrogate terms. For example, the spill didn't happen, so we think that we contributed to it not happening. That's very difficult to measure. And preparedness has always been the weaker stepchild of response. Preparedness is doing plan review, drilling, and that kind of work, but the response happens and we're out of there. That's the glamorous part: Let's get out there and clean it up. So, at Ecology, the prevention for facilities was getting very little attention, and preparedness was getting very little attention. So, the environmentalists thought prevention for vessels would go in the same direction, that it would be absorbed with the response aspects. So, they opposed the merger.

MM: And what were the feelings of the Office of Marine Safety?

SN: Needless to say, the administrator of the OMS and many of the staff were much more comfortable in their own little, separate agency than to come into Ecology. So, the OMS opposed the merger, saying we're not done yet; we're still developing. I wouldn't call Ecology a big proponent of the merger either. I don't think Ecology cared that much about it, except that the governor had said, I want this to happen. I think the main proponents were industry. For the same reasons the environmentalists opposed the merger, industry supported the merger.

MM: Industry thought Ecology's regulation would be more lax than that of OMS?

SN: Well, the spotlight would be off of them. The merger would diffuse the attention that they were receiving. Plus the administrator of the Office of Marine Safety was very aggressive and very assertive. There were people who wanted the office to remain, but then there were others who wanted it to go away.

MM: What were the results of the merger for the Department of Ecology and the Office of Marine Safety?

SN: Well, in spite of the dire consequences predicted by the environmental community before the merger, it has been very successful. A lot of credit goes to this agency for sustaining the focus on prevention, and using its leverage as a large agency to actually attain things that the Office of Marine Safety was unable to obtain because of its size. A huge amount of credit goes to Tom Fitzsimmons, our former agency director. He accepted the challenge of making prevention No. 1. Spills is the smallest program in Ecology, yet Tom spent a lot of time on our issues. He realized that this was a young, fragile program. A lot of people were hoping it would fail, but it had the potential to be a huge success.

MM: Were there other governmental organizations focused on issues of oil spills in particular, at the time that this program was in the making?

SN: There was another organization that was developed in 1989 called the Pacific States/British Columbia Oil Spill Task Force. In 1988, after the *Nestucca* spill, the governor of Washington and the premier of British Columbia met and said, you know, we didn't do this very well together. We just didn't handle the *Nestucca* well. We were being told that the oil spill wouldn't go to Canada, and it did go to Canada. We weren't ready. We didn't have people ready to clean the beaches. We just didn't coordinate very well. We didn't know what was going to happen. So they were actually scheduled to meet and sign a Memorandum of Agreement on Oil Spill Prevention and Response between the state of Washington and the Province of British Columbia when the *Exxon Valdez* spill occurred. Literally, within days of when the *Exxon Valdez* spill occurred, the premier and the governor were scheduled to sign this agreement, and they said, wow, this is more then just the two of us, this is everybody. And guess what, Alaska and Washington are a lot alike. Puget Sound looks a whole lot like Prince William Sound. First this group included the directors of the agencies in Washington, British Columbia, Alaska, and Oregon, the big four. A few months later, California jumped in, and they quickly formed the Task Force with the idea of looking at what went wrong with the *Exxon Valdez*. They came out with a report very quickly, by 1990, about what went wrong, and where we needed to go. And they said, you know, it is really good to get together periodically to coordinate and work together on regional issues because the same ships go to all of our ports. We have similar problems, similar issues, and the industry is very interested in being consistent so they won't have to change their operations every time they cross a border. They would have consistent rules, and it would be easier to comply in each state if we had the Task Force. I started in 1995 as the Office of Marine Safety Coordinating Committee member. Each state and the Province of British Columbia have a coordinating committee member. The members themselves are the directors of the agencies or the deputy directors. In our case it's our director. So the Task Force became larger and it was codified, made semi-permanent or perpetual, and we have participated in and been leaders on that Task Force from the beginning. We just celebrated the Task Force's 15th anniversary.

MM: Well, that sounds like a great task force.

SN: It is a great task force. We've done some very effective regional projects. All vessels going up and down the coast, from Cook Inlet, Alaska, to San Diego, California, are voluntarily staying at least a minimum of 25 miles off the coast, except when they are entering the port. That way, if they should break down or have a spill, it gives us time to respond. It gives us time to get a tug out there.

We're doing the same thing right now for places of refuge. I don't know if you followed the story of the tanker *Prestige* that sank off the Northern coast of Spain in 2002, but one of problems there was that the tanker was turned away and sent offshore. So, as a result of the *Prestige*, the International Maritime Organization (IMO) began to prepare some guidelines, partly under the pressure from the European community, for handling a vessel that's in trouble—is it better to bring it in and reduce the impacts, or to send it offshore where it may oil three countries? In the meantime, the Task Force saw an opportunity, and the Coast Guard especially liked the idea of addressing this regionally. So we formed a joint group, a subgroup of the task force, including the U.S. and Canadian Coast Guards and all the Task

Force members, and we've been putting some meat on the bones that the IMO gave us. The IMO gave us general guidelines: We should take the people off if they are in danger, and investigate whether the ship should come into a place of refuge and then select one which would be able to care for the ship, and so on. So, we formed a large working group with industry, environmentalists, and agencies to develop a process for evaluating places of refuge, taking into account the economics and the capabilities of ports to provide all of those things. The decision makers, when the event occurs, would need a template to guide their decision-making process. The U.S. Coast Guard would then use our work as a template to apply, not only to the rest of the U.S., but perhaps worldwide. The result is that our efforts are being watched very closely. In the oil business and in spill prevention and response, the West Coast is by far the international leader in virtually all aspects. These are world-class programs here.

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MM: Having been a ship's captain, and having had the experience you've had with the Coast Guard, what's the relationship between the Coast Guard and Ecology in terms of vessel inspection and regulating? How do the two organizations compliment each other?

SN: I think the states have filled a real vital role that was missing in the Coast Guard. The Coast Guard Marine Safety Program group has worked very hard, but they're nearly all engineers, and they're not ship captains. That causes them to focus on the machine, not on the people who operate the machine. I can only a name few from my Coast Guard career who have crossed over between operations in Marine Safety and Coast Guard. Once you're in Coast Guard's Marine Safety Program, they hold onto you very tightly. They send the officers off to the University of Michigan to become certified naval architects and marine engineers. So, they have a big investment in your training. I would say it's common knowledge around the industry that 80 percent of all shipboard incidents and accidents are caused by human error or organizational error. If you dig deep enough, you could say 100 percent. As Admiral Card used to say, "We may have perfected the machine, but we've paid very little attention to the operator."

MM: And who is Admiral Card?

SN: Admiral Card of the Coast Guard created a special program when he was assistant commandant for Marine Safety, called Prevention Through People. He recognized that we had spent, as he said, 80 percent of our time on 20 percent of the problem. In other words, the Coast Guard had become very comfortable with the machines because the machines were easier to deal with.

MM: And machines are something that you can know, whereas people are unpredictable?

SN: People are unpredictable. So, I think, to a large extent, we at Ecology and OMS contributed to several very critical and fairly new international standards for the training and the certification of seafarers. I'm referring here to the International Ship Management

Code that tells companies how they have to operate if they manage vessels, and the 1995 changes to the international convention that governs how seafarers are trained and qualified. So, we pushed pretty hard on these things. It's not perfect yet; the international regime still has gaps in it, and the Coast Guard's enforcement regime still has gaps in it. There's still work to be done.

MM: Regarding vessel safety and related innovative or new processes, what other kind of work did you do?

SN: About a year after I joined the Office of Marine Safety, the deputy administrator walked in and said, I'd like you to get a group together and write the rules that define Best Achievable Protection for tank vessels. I'd never done any kind of rulemaking. And he said, don't make this harder than it is. You know what works on ships, just pretend that you own that tanker. At that time, Best Achievable Protection was the standard provided in our statute, but nobody had ever defined it. It's pretty common language in environmental legislation, but what does it mean? I started with, OK, if I owned that tanker, if I were personally responsible for it, how would I manage it and operate it? If everything my family owned were on the table, if I had a spill, what would I do to operate that ship so that it was less likely to spill?

I started with four groups of issues: Operations, Management, Personnel, and Technology. I just started writing things that I would do if I owned that tanker. I had a huge list, an enormous list. We got an advisory group together, including Coast Guard people, marine pilots, company people, operations managers, trainers, tug operators, law advocates—a pretty good cross section. We got them together and we took this list and whittled it down to what were the most important items. And then we wrote those in terms of standards, and they became regulations. Those were the state regulations that became challenged by Intertanko, The International Association of Independent Tanker Owners. The plans required the companies that operated tank vessels, barges, or tankers in the state of Washington, to submit detailed prevention plans demonstrating how they met those standards to the state. The plans were then reviewed and approved by experienced master mariners. You could not operate in Washington without an approved prevention plan. On December 9, 1994, the regulations were signed and the shipping companies had six months to comply. So the regulations actually came into effect in June of '95, but in July of '95, a month later, Intertanko brought suit against us in federal court saying that we were preempted from doing this by the U.S. Constitution. The essence of the lawsuit was that only the federal government could regulate international trade.

MM: Are you talking about *Intertanko v. Locke*?

SN: Yes. The case took until 2000 to resolve. So we had five years that the regulations were in effect. In order to operate a vessel safely, training requirements were imposed on the crew. They couldn't merely follow those regulations when they were in Washington. In fact, they needed to operate their whole fleet our way because they changed crews on the ships. Basically the state was reaching out, and anybody who wanted to operate here had to operate to our standards.

Basically there are two different kinds of tanker operators. There are the oil companies that operate tankers that carry their oil. There's a law in the United States called "strict liability," which states that it doesn't matter whose fault it is, whoever owns the oil in the

vessel is liable. You clean it up if it causes damages. If it goes in the water, you're liable. I don't care if it's your fault or the ship's fault, it doesn't matter. If you own the oil, you're liable. That puts a big hammer in the hands of the regulators. The oil companies, including Exxon, operate tankers because they do not trust anybody else to carry the oil. Operating their tank vessels is not a profit center for them. It's a risk management thing. They almost don't care what they have to spend; they cannot afford a spill. These are wholly-owned subsidiary companies. Their job isn't to make a profit, but not to spill. Then there are the independent tanker companies. These are the people who only make their money by carrying the stuff. They don't own it. That's what Intertanko is, an association of independent tanker operators. Obviously, we cut into their profits when we hold them to very high standards. They don't like the oil companies either. I mean, they don't like the state, but they don't like the oil companies either. They don't like the companies that are holding them to very high standards in order to let them carry their oil because it cuts into their bottom line. That's what the Intertanko suit was all about.

In spite of having Coast Guard people on the committee, in spite of my making a special trip to Washington, D.C., to brief Admiral Card and the whole Marine Safety staff on what the standards were and how they were developed, in spite of their acknowledgement that these were very good standards that filled gaps, politics took over. The U.S. joined the suit at the appeals court level.

MM: And what were the results of that decision?

SN: Well, we won the district court decision. Intertanko appealed it. The U.S. joined. It went to the Ninth Circuit Court of Appeals. These are all federal courts. We won again, and Intertanko appealed again. At the U.S. Supreme Court, we really got clobbered. Now think about the composition of the U.S. Supreme Court in 2000. I'll just leave it at that. In March of 2000, the U.S. Supreme Court decision came out, and it basically ordered us out of the prevention business. Only the Coast Guard could issue that kind of regulation. It wasn't totally unexpected; we had been thinking about it. In acknowledgement that ours were very good standards, and that some people in the industry had been operating under these standards no matter what the U.S. Supreme Court said, and because they believed in them and they knew that these standards reduced their risk, we were able to pick ourselves up, dust ourselves off, and institute a voluntary system.

MM: What did you have to do after the decision was made?

SN: We had to withdraw the rules and set up a voluntary program. What we asked was that vessels submit a prevention plan just like before. Our part of the submittal agreement is that they allow our inspectors to come on board to verify that they're doing what their plan says. You might ask, why would anybody sign up for this thing if it's not required? There are, I think, two reasons: One is, they believe the standards will reduce the risk. That's the best reason of all. The other reason is that we offer public recognition. We post their names on our website, and we hope that people, when they're deciding who's going to carry their oil, will choose one that's adhering to the standards, which will reduce their own risk. We also don't go back for three years. We don't do any of the other types of inspections that we could do, so they get a break on their inspections, and that's a benefit because every inspection—whether it's Customs, or Agriculture, Coast Guard, or security—takes time from

their crew, and time is money. Once they're inspected, and they meet these standards, unless they have an incident or an accident, we leave them alone for three years.

MM: What are the issues and interests for commercial shipping, and what are the interests of Ecology regarding safety and in what ways are these interests related, working toward a goal or resolving a conflict?

SN: Well, I think the state has a strong interest in preventing oil spills, obviously. Due to the cost of spilling oil, I think the operators have a strong interest in preventing them as well. Then there's a distinct difference between the tank ships and the non-tank ships. The oil industry has realized that they cannot afford to spill oil. Of course they carry it as a cargo, so by definition they are at high risk, just because of how much oil they carry. But they have realized that they cannot afford to spill it, so their interest is more along the same line as the state's than is the non-tank vessel industry. The non-tank vessel industry makes its money by transporting goods, very similar to the independent tanker owners. The bottom line is critical to them, and they see this as an expense, and it is. Any time you're trying to affect human behavior, you're going to impact your bottom line. So they are willing to gamble. The way I characterize this is: You can gamble with your own life, you can gamble with your ship, you can gamble with your profit, but it's our job to make sure you don't gamble with our environment, because all those things that you're gambling with are replaceable. Our environment is not.

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MM: Do your inspectors have shipboard experience?

SN: They are all licensed masters or chief engineers. It has taken a great deal of work to achieve that level of staffing. Until one of our engineers left to go back to sailing, we had a representative on staff from every maritime academy in the United States, which is very hard to come by. We have an Annapolis graduate who was a nuclear submarine skipper in the Navy before he retired, and he sailed as a master mariner on ships after that. We have graduates of Kings Point, New York Maritime, Texas Maritime, California Maritime, Massachusetts Maritime, and I attended the Coast Guard Academy. The requirement to be a vessel inspector is that you be a licensed master or chief engineer, and have sailed on that license, not just taken a test, but actually have several years of experience. So, they have tremendous credibility when they walk on board. That's the other aspect of prevention. There are other regulations and standards, but the main thing we bring is that when we're on board, we teach. Our approach is, I'm here to enforce, but I'm also here to educate and to keep you out of trouble, because the first persons to hang when there is a spill are the captain and the crew, when, in reality, they may not have been supported adequately by the company to enable them to do the right thing. So we help them stay out of trouble as much as we can.

MM: What is your feeling about having people working in the field? How necessary and essential is it to your mission?

SN: The biggest bang for the buck is to go face-to-face with people, carry your message, do your educating, get to know these people. When the oil hits the water, it's too late to make a friend, and we will all hang separately if we don't hang together. The public has no tolerance for the government agencies working with the responsible party. They expect us to do 100 percent and more to get that stuff out of the water, which, by the way, you can't accomplish. People think you can clean up oil, but in most cases you can only recover about 20 percent. Off the coast, on a good day, recovery will probably be less than 10 percent. When it goes in the water, it's going to stay in the water. Fifteen years later, you can pick up a rock and find *Exxon Valdez* oil in Prince William Sound. You just can't clean it up. Years ago, when we had a big conference on oil spill prevention and response, Dr. Sharon Christopherson of the National Oceanographic and Atmospheric Administration (NOAA) said it most succinctly—on the Washington coast, you'd better prevent it, because we cannot clean it up. In other words, once it gets in the water, it's too late; the horse is literally out of the barn.

MM: When inspectors go on board, what are the things they're looking for?

SN: On the operations side, our inspectors are going to be looking at how the vessel is run. Did they do a voyage plan before they came in? How do they operate together as a team on the bridge of the ship? Do they speak English well enough to understand the commands given by the pilot? Those sorts of issues. Then, we will inspect the engine room to see if they're adhering to federal requirements for a manned engine room. Our inspectors will ask about standards of care issued by the Harbor Safety Committees for our waters. Do they know who to call if they have a spill or incident? On the management side, do they have a preventive maintenance system for all their major systems? Is it computerized? How do they get spare parts? Do they carry enough spare parts in case they have failures? On the personnel side, are they adequately staffed and trained, or are they cutting corners? Have they held drills on oil spill response? We often do a little drill right there: Captain, you've just had a spill, who do you call? How are you going to call? Do you have a cell phone, do you have a radio, do you know what channel to use to reach the Marine Exchange or the Emergency Management Division? We look at emergency towing because we promote the rescue tug in case of a vessel losing propulsion out at the entrance, or off our coast. So, there's a lengthy checklist the inspectors go through. Almost the entire inspection is by interview, taking about four hours. And of course, if we find national or international violations, we report them to the Coast Guard.

MM: What are the differences in inspections of passenger ferries, tank barges, tank ships, commercial fishing vessels, factory fishing vessels, and the like?

SN: There are differences between vessels; although, with large commercial vessels, generally a ship is a ship. Whether it's a tanker or a container ship, there are very similar standards that will prevent ships from having a collision, or grounding and putting oil in the water. We do cover passenger vessels, and state ferries, and we cover tank barges and larger fishing vessels. We have inspection programs that have been tailored to each of those groups. So we do have tailored programs for all types of vessels based on that original list of things to consider that we created in 1994. Because the inspection program I described is

now voluntary, we only inspect to those standards for those that volunteer. We still go on board for refueling inspections, and we go on board for notification drills of those who don't participate, but we're prohibited from going on board those that have not volunteered. So our effort is to get as many to volunteer as we can. Currently, even though we only have a small number of companies participating, we cover at least half the tanker traffic that comes into Puget Sound. We don't have as many barge companies participating, because they are repeat visitors, and a tanker and a tank barge are quite different.

On the cargo ship side, we cover all vessels over 300 tons, which is virtually all of them. And we have a program almost as detailed as the tanker program for them, only it was developed after the suit was filed, and since. I was in charge of the development, and I had the advantage of having learned from the tank vessel process. So we started with the international standards and said, OK, of all the gaps, which of those are particularly important to us in Washington. That's how what we call Accepted Industry Standards were developed. Those are the standards cargo and passenger-vessel checklists are based upon. We have the state ferries, which is a particular type of passenger vessel, obviously. So we took those standards and we began inspecting the 20 plus state ferries every two years.

MM: And the fishing vessels?

SN: The fishing vessels are truly unique and different, and they don't come in and out, except when they're going out to fish in Alaska. There are about 150 of these large vessels that call Washington home, and then there are foreign vessels that come in periodically to refit. Some of those are very large ships, factory fishing vessels. By far, fishing vessels were the most difficult group to deal with because they just don't want to be regulated, period. Whereas the oil industry is used to being regulated, and they're fairly easy to deal with from a regulators point of view, the fishing industry, which isn't regulated by the Coast Guard, isn't used to being regulated. The Coast Guard strongly encouraged us to get after them because they have very little authority over them at all, at least as far as safety is concerned. So the fishing industry is very tough. Many are mom and pop operations whose attitudes are, why should I listen to what you're telling me? You're not a fisherman, you don't know anything about fishing. But a ship is a ship is a ship. They do have issues and problems, and they spill a lot, mostly small spills. Also, it's a dangerous occupation; many people have lost their lives fishing. So they needed some help. So, we said, OK, here are the gaps in the international regulations that you are supposed to comply with, and then here is the federal voluntary program. Which of these is important for this transit to and from Alaska through Washington waters? We came out with a list of accepted industry standards, and that's what forms the basis for the Fishing Vessel Checklist.

MM: Can you give me an example of what you might find on a fishing vessel that would indicate they were unsafe?

SN: We had a large Russian fishing vessel, a processing unit, come in—I mean, 5,000 tons—a big ship. I was asked to go on board by the company that was going to refuel them. They wanted either the Coast Guard or the state to inspect the vessel before they would refuel them, which is a credit to that company. Anyway, they saw the risk involved, and so I contacted the captain of the Port, and he said, by all means, please go down and do the refueling inspection, and look out for safety issues. They were about to leave for the Bering Sea to fish. They had over 60 people on board, and they had only five survival suits.

MM: That means that the rest of the people, the other 55 plus, would die, right?

SN: Yes, if they went down, that's right. So I could point that out, and I could write it up. I couldn't force them to get more survival suits because it had nothing to do with oil, and they were out of the Coast Guard jurisdiction. But at least we could note it, get it in writing, and send it off to the parent company. The Coast Guard would then have the documents to refer back to, and we thought we might effect some changes. So that's a case where we worked together to make the vessel safer and, perhaps, less likely to spill oil. The problem is, in that industry, it's all about profit. Some of those people could make two fishing trips and retire forever.

MM: I've read the term, Exceptional Compliance, and I wonder, in terms of inspections and vessel safety, what that means?

SN: We actually had companies say, you know, as high as these standards are, we can do better. And we sat down and we said, what does that look like? It's even going a little bit further, you know, instead of just training everybody in the bridge team, its actually spending the money to take the whole team together and train them, just that little tweak upward. We call it Exceptional Compliance. Right now four companies have reached that very high standard, two U.S. companies and two foreign companies. They are the best in the world in our opinion.

MM: So are you optimistic about what's happened in terms of safety and prevention on the waterways?

SN: Yes. Usually optimistic. The volume of oil spilled is way down, especially from the regulated vessels and facilities. It's a tiny amount compared to what it was in the '80s. We've had huge success with them. Now most of the oil that enters the water comes from smaller vessels and facilities that we don't regulate, but the Coast Guard does.

MM: It sounds as if Ecology has developed a good working relationship with the Coast Guard at this point. Is that how you'd characterize it?

SN: Yes, and there's a real concern with my departure when I retire this May that the state will lose its connection to the Coast Guard. The Coast Guard is a very unusual organization from the state's perspective, because of the way it has developed over its 215 years of existence. It takes a senior officer, somebody who's been in the Coast Guard 20 years or so with relatively high levels of responsibility, to understand the Coast Guard and use that knowledge within the state system. So, regardless of who replaces me, we need to find a retired senior Coast Guard officer to provide that essential liaison.

MM: It sounds like you're leaving marine safety in a good place, and that you've had a pretty good impact on the industry. Still, I wonder, what are your hopes and aspirations for the industry after you leave, for the future of marine safety?

SN: I'd like to bring the non-tank vessel industry to the same position as the tank vessel industry, and, of course, the fishing vessels. So, my aspiration would be not just to change the way they operate, but to change their attitude, making oil spilling unacceptable. And at the same time, when you prevent spills, you prevent accidents, and you prevent injuries and deaths among seafarers. So, by being more environmentally conscious, we'll also be safer. Even if it's a ship from Singapore, I would like them to come into Puget Sound and say, we

will never dirty this water. And I don't know if we're ever going to get there, but we should not stop trying. And while we're very proud, rightly so, and concerned about Washington, the West Coast is a very special place. So, I would like every sailor, from the captain to the able-bodied seaman, when they approach the West Coast of the United States to say, we have to be especially careful here because we cannot afford to spill one drop of oil in this place. That's what I'd like to see. It's pretty high level, I have to admit, but if you can get the tanker industry to do it, and I think we have, it's not impossible.

Chapter Thirteen - An Unintended Legacy: Persistent Bioaccumulative Toxins

As flame retardant chemicals were being discovered in breast milk, and PCBs (polychlorinated biphenyls) were being found in the fat of Puget Sound's orca whales, Washington state Governor Gary Locke made an unprecedented executive order, declaring his commitment to phase out persistent, toxic pollution in Washington state. As part of this executive order, issued in January 2004, Governor Locke directed the Department of Ecology to work with the Department of Health to develop a means of identifying persistent pollutants that create a threat to human health and to the environment of Washington state. It was one of the first such executive orders to be issued by any United States governor, providing direction to develop a list of persistent bioaccumulative toxins (PBTs) in regulation, chemical action plans, provision for public education, and encouraging participatory support by other state agencies. Interviewees in this chapter describe how efforts to reduce PBTs, which build up as opposed to dispersing as they travel up the food chain, have become the agency's new frontier. Historically speaking, this chapter draws upon early efforts by the Department of Ecology to tackle the issue of mercury and banned pesticides in surface water and soil, and extends to more recent actions, such as establishing an agency PBT coordinator position to facilitate a long-term, cross-media PBT reduction strategy, certain to impact the work the Department of Ecology will do for years to come.

Chapter Advisor: Mike Gallagher, Agency PBT Coordinator, Environmental Assessment Program

Interviewer: Maria McLeod

Pollution Prevention: Thinking 100 Years Ahead

An interview with Mike Gallagher
June 18, 2004


Gallagher

Position held at time of interview:

Persistent Bioaccumulative Toxins Coordinator, Environmental Assessment Program, Washington State Department of Ecology, since 1998

(Employed by Ecology since 1984)

Education:

- Master of Public Administration, The Evergreen State College, 1990
- Master of Science in Geology, Western Michigan University, 1984
- Bachelor of Science in Geology, University of Puget Sound, 1980

Maria McLeod: Mike, I'm interested in how your position as Persistent Bioaccumulative Toxins coordinator, and support for your position, came about in 1998. But before we dive into that, I wondered if you could define PBTs? What are "persistent bioaccumulative toxins"?

The term "persistent bioaccumulative toxin" defines the three-legged stool—elements that are required or that make these chemicals a concern. That is, they last in the environment a long time, meaning they are persistent; they can build up, or bioaccumulate, in the food chain and in humans and animals; and they're known toxins.

Mike Gallagher: The term "persistent bioaccumulative toxin" defines the three-legged stool—elements that are required or that make these chemicals a concern. That is, they last in the environment a long time, meaning they are persistent; they can build up, or bioaccumulate, in the food chain and in humans and animals; and they're known toxins. Polychlorinated biphenyls (PCBs) and dichloro-diphenyl-trichloroethane (DDT) have been banned for over 30 years, haven't been produced at all, and yet they're still in fish tissue and sediment throughout the world, with cases here in Washington state. PBTs build up in the food chain. At low levels, the low eutrophic end, the critters, bottom feeders, eat the sediments, or eat smaller critters. Small fish eat the critters and larger fish eat the smaller fish. In each step up the food chain, these chemicals are ingested by the predator, and they're accumulated. That is, they build up as the predators ingest more of what they eat. By the time you get up to polar bears and orca whales and, potentially, humans, they can build up to pretty alarming levels, and they're toxic. They can be carcinogenic or they can cause—if they're in high enough doses—birth defects. Even low dose exposure to some chemicals at very critical times during animal or human fetal development is highly suspected of sending that fetus on a path that maybe is different from normal, either slightly different or massively different, depending on when the exposure occurred or what the exposure was.

MM: I've noticed that these toxic substances, these PBTs, are sometimes referred to as legacy chemicals. Where does that term come from?

MG: I don't know the source of the term, but because these chemicals are so persistent, because they last such a long time after they're released in the environment, they become an unintended legacy. It's not a very positive legacy, but just the same, it's a legacy. So, these chemicals have this potential, or are showing that they can leave an unintended legacy. Obviously mercury lasts forever, it's an element. But a PCB that's in a polar bear today, or even in our bodies today, came from a transformer 25 or 30 years ago, or 50 years ago, through the environment and is now present in our body for the rest of our life. It has left this legacy. Toxic flame retardants, which we're currently doing an action plan on now, are still in use, still in production, they are in this room as we speak. They're in the foam of these chairs. They're in this computer housing. They could be to some degree, in this carpet. The purpose of polybrominated diphenyl ethers (PBDEs) flame retardants is to delay the combustion of a fire to make it safer for you and me in a work environment or a home environment—to give us time to get out of a room while it's still smoldering before it erupts into flames—but unfortunately a byproduct, a legacy of those flame retardants, is

that they are extremely persistent, and they're getting into the environment, into the food chain. They've been detected in breast milk at increasing levels to the degree that we at Ecology, EPA, other state agencies, and interest groups are asking, why are we using these products if they're leaving this legacy? Is there an alternative? Let's look for those alternatives and make sure they're safe. We're not trying to compromise on fire protection, but at the same time, we don't want these unintended consequences, this legacy.

MM: What brought this issue to the forefront for the agency, and how did the agency come to have a PBT committee, which you coordinate?

MG: In August of '98 the agency released a report to the public, the results of a dioxin source assessment, listing sources of dioxin around the state. Upon release of that report, Tom Fitzsimmons, the director of Ecology at the time, announced Ecology's intention to take a deliberate effort in focusing on PBTs, which, at the time, were still called "bioaccumulative chemicals of concern." So, they created a brand new position, PBT coordinator, to head up that effort. I had been working at the Northwest Regional Office as section manager of what's called the Toxics Cleanup Section since 1990. I felt I needed something new to do, and this opportunity came along to start, basically from ground zero, a strategy to reduce PBTs.

MM: I'm interested in the dioxin source assessment, which seems to have been an instigator for the creation of your position and the PBT reduction strategy. What are dioxins, and what was the result of the dioxin source assessment?

MG: Dioxins are combustion by-products, primarily. They're organic chemicals. There's a whole series of them, and they're often combined together with another group called furans. They're created primarily through the combustion of the chlorine atom, or a series of chlorine atoms, and it's a very toxic chemical at low doses. I don't know all the toxicology behind it, but it's considered to be one of the most feared environmental chemicals out there that agencies like Ecology have to deal with. There was a good deal of concern about dioxins in the late '90s, so Ecology commenced a study. Washington state has a variety of historical and current dioxin sources, primarily pulp and paper mills, medical waste incinerators, solid waste incinerators, and combustion—cars, buses and trucks emit a small source—and outdoor burning. The dioxin source assessment gave us a better picture of what the sources are, but as a chemical it's very politically charged. There are people who feel that it's way over regulated and there are those who feel it's not regulated enough.

Dioxin warning. Dioxin is a compound of the Persistent Bioaccumulative Toxic families that exists in the environment.

MM: Were dioxins the first PBTs people at Ecology were examining and talking about?

MG: I think that's a fair statement. In the early days of this PBT effort, there was a group within the agency called the Chlorine Committee. It was an ad hoc group of toxicologists and other people in Ecology who were trying to get more attention and focus on dioxin as a pollutant of concern. That kind of mushroomed into addressing other substances like PCBs and mercury and others now known as PBTs.

Finally, in the summer of '98, that group convinced our agency management to take a more deliberate, long-term approach, which led to what we now have as a PBT reduction strategy.

MM: Would you say it was the work of that group that led to the development of your position, and the need to focus on PBTs in a more targeted manner?

MG: It was two-pronged—I don't want to call it a two-pronged attack—but it came from two areas. Within Ecology there was this group of chlorine and persistent pollutant folks who saw a common problem or common series of problems they felt current laws and regulations were inadequately addressing—that dioxins and mercury and PCBs and DDTs are extremely persistent. They last a long time once they're released. They're toxic at low doses, toxic in the sense that they're carcinogens, but also toxic in the sense that they can impact the endocrine system or they can cause birth defects in animals. They can impact wildlife. They can accumulate in fish and human tissue, and they can move across media. For example, the Waste Discharge Permit on facility X might allow chemical Y to come out below the permit level, so, it's legal. But it still gets into the environment and accumulates, and then maybe it moves into the air or binds in the soil and is taken up by the food chain. It causes a whole series of long-term problems. So, that's one prong, originating with the agency. The second prong comes from outside the agency: environmental interest organizations and public interest organizations such as the Washington Toxics Coalition, People for Puget Sound, and Washington Public Interest Research Group (WashPIRG) were telling the agency that we need to do more about this type of chemical. Not that those three groups ever met and conversed, but they all influenced our agency management. Tom Fitzsimmons, his deputy, Dan Silver, and the management circle around the director at the time went on record in 1998 publicly stating, we're going to look at this type of chemical and what can be done about them. At the time, the stated goal was to eliminate them, but in reality, the question is, how can we continue to reduce them so they're less and less of a threat? Because we're looking at a long-term problem if we don't do anything, and 20 to 30 years from now, we could regret not doing anything.

MM: Wasn't Ecology already dealing with PBTs? Why the special designation?

MG: OK, let me back up to this: Agency senior management decided they would create this PBT coordinator position, house it in the Environmental Assessment Program, which is the program that does the monitoring of groundwater, surface water, fish tissue, and sediment monitoring, primarily for the Toxics Cleanup and the Water Quality Programs. They're basically our clients. So, in a sense, we're a kind of consulting program within Ecology where scientific individuals not influenced by external pressures or politics can objectively focus on different areas to monitor. The Environmental Assessment Program, or EAP, also runs the agency laboratory in Manchester, Washington. It was decided that this position, PBT coordinator, would be with EAP so that it would not have undue influence from Hazardous Waste, Toxics Cleanup, Water Quality, Air Quality, or Solid Waste. All five of those other programs have a role and have regulatory authority and responsibility for the type of chemical we're talking about—these PBTs. But if this position were housed, for example, in the Hazardous Waste Program, then it would strictly have that viewpoint, and the goal was to try to get a broad, multimedia, cross-media—air, land, soil and water—perspective on these chemicals.

MM: So, when you came on board in 1998, what was your charge, and what were your responsibilities as PBT coordinator?

MG: When I started this position, the first words Bill Backous, my boss, said were, "We're having this symposium in Tacoma on December 2, and we have the Sheraton Conference Room at the Sheraton Hotel. You need to put together the agenda." This was September. So I organized a group of internal and external folks to help brainstorm who we'd have come and speak. We called it, "Eliminating Toxic and Bioaccumulative Chemicals, a Challenge to Washington State, a Symposium." We invited speakers from Environment Canada, EPA Region 10 and EPA Headquarters in Washington, D.C., and from the International Joint Commission, which is a United States/Canadian agency that deals with boundary issues—one of the big issues being the movement of pollution across boundaries. We also invited a speaker from NOAA (National Oceanic and Atmospheric Administration), and from the U.S. Fish and Wildlife, plus our director at the time, Tom Fitzsimmons. We had a speaker from industry, Great Lakes United, and a speaker from the Washington Toxics Coalition. On December 2, 1998, they came and gave their talks on global, national, and local perspectives about bioaccumulative chemicals of concern, or PBTs, or what are sometimes referred to as persistent organic pollutants. There were about 250 people attending an all-day meeting.

MM: And how did you arrive at selecting those 250 people?

MG: We invited anybody who wanted to come. Outside of a small fee for lunch and to offset some of our costs, it was technically a free public meeting. Industry representatives came, avid citizens—it was an opportunity for everybody to learn more about this issue. Just what are these chemicals, these PBTs? Why are they PBTs? Why are they different from other chemicals that people expect Ecology to be responsible for managing and regulating? Why is a mercury or DDT different from a benzene or a toluene, which are bad chemicals for other reasons. So we got educated on that, and we all learned a lot about what was happening primarily in the Great Lakes region and in Canada. That was really the main purpose and scope of the meeting. Serendipitously, in November of '98, just a month before our symposium, EPA announced a national PBT strategy. We had no idea it was coming.

MM: In talking about your symposium, you mentioned much of what you learned, your knowledge of PBTs, came from the Great Lakes area, but yet you're here in Washington. Can you explain why there was so much focus on the Great Lakes at that symposium?

MG: The issue of PBTs and their emergence really started in the Great Lakes area—Michigan, Ohio, Indiana, Illinois, the Province of Ontario, Wisconsin, Minnesota—all highly industrialized areas. Dow Chemical, General Motors, Ford, Archer Daniels Midland are all headquartered in that area. I'm just mentioning companies I can think of. There are others as well, and by mentioning them I'm not saying they're good or bad stewards of the environment. It's just that it's an industrialized area. It's the industrialized part of Canada as well. There were reports in the mid-1980s to mid-1990s of birds that had deformed beaks or thinning eggshells or declining offspring. The wildlife biologists studied these birds and found high levels of PCB or DDT or dioxin. This became an international issue between the United States and Canada that got the attention of the International Joint Commission, which is a boundary organization that's primarily focused on the water supply

of the Great Lakes, but it actually deals with the entire boundary between Point Roberts, Washington, all the way to Maine. There were studies in the Great Lakes areas that showed that children who ate higher levels of Great Lakes fish had lower IQ levels than those who did not. It was found that the Great Lakes fish had high levels of PCBs in them. The results of that study, the Jacobson Study, were pretty alarming. EPA Region 5 created a bi-national toxics strategy in coordination with the Province of Ontario, and Environment Canada as well. So, when we looked for symposium speakers, these were the experts I found, and we paid to fly them out here to spend a day with us.

MM: Talk to me a little bit about the ways in which this area of Washington is industrialized, similar to the Great Lakes area, the ways the water, or the air, or the land, has been affected.

MG: Washington is not as industrialized as your Great Lakes states, but we do have our industry. We have pulp and paper; we have aluminum smelting; we have petroleum refineries that refine the oil from Alaska and other sources. We have aircraft manufacturing, software manufacturing. Also, our population here in Washington behaves no differently from the population in the Midwest. We burn outdoors; we use fluorescent lamps; we have mercury thermometers in our homes, mercury thermostats; we drive cars. We buy a variety of other consumer products—like everywhere else—that unfortunately have toxic flame retardants in them as well. A lot of the industry I mentioned uses other chemicals, too. As for the pulp and paper industry, there's been concern about dioxin.

Just think, nearly every home has probably broken a fever thermometer, and that mercury goes down the drain or is flushed down the toilet. Stuff is burned, and all of us throw away fluorescent lamps or fluorescent light tubes. All of that combined is creating the next generation of environmental problems. So this is really a societal problem, and it's a slow-growing problem.

MM: Are there other sources of PBTs, outside of industry?

MG: The Environmental Assessment Program does a lot of monitoring, and has studies and information that show there are low levels of DDT or dioxin or mercury or lead or polynuclear aromatic hydrocarbons throughout the state, primarily in past industrial areas. A lot of the pollution that we have in our sediments, in groundwater and soil, is the result of historical practices of the '50s, '60s and '40s, before the regulations we have in place today were there. Back then, it was perfectly acceptable to throw sources of these chemicals into the unlined, unpermitted landfill or to discharge them into the water. So we looked at the industry here in Washington, but we also realized that part of the issue with PBTs is that it isn't just an industry problem. Other PBTs that are of concern are pesticides, your DDTs, but also other pesticides—some of which have been banned and maybe some that are still in use today—are also persistent and bioaccumulative. Pesticides are designed to be persistent. The source of this type of chemical in our environment here in Washington isn't just from the smokestacks and discharge pipes, or it isn't just from the farms, but it's also from homeowners who use pesticides, from people like you and me. Just think, nearly every home has probably broken a fever thermometer, and that mercury

goes down the drain or is flushed down the toilet. Stuff is burned, and all of us throw away fluorescent lamps or fluorescent light tubes. All of that combined is creating the next generation of environmental problems. So this is really a societal problem, and it's a slow-growing problem.

It's not like the sky is falling, but here we have a legacy of DDTs and PCBs being banned in 1970, yet they're still in fish tissue today. What's the next problem we're creating now with some of these other chemicals? As a society, we're so used to thinking in 30-year segments, the 30-year mortgage, a 30-year career, 20 to 30 years of raising your children, 20 to 30 years of birth to adulthood, maybe 30 years of retirement. We really need to think in longer terms—we need to think in 100-year terms or 50-year terms. We need to think about what we are doing today that's going to impact our grandchildren's grandchildren and how we can make it better. I know that's a little philosophical and maybe off the subject, but this whole PBT issue is about shifting paradigms. It's the paradigm shift of looking historically at the way we've dealt with pollution, not that all pollution has to be looked at differently, but some of it does.

MM: What's going to happen if we don't start thinking in 100-year terms, if we can only think in 30-year terms?

MG: Well, maybe a way to address that is to ask what would happen if we totally ignored these chemicals? Many people's view is that if we ignore these chemicals, we will see higher levels of them in the food chain—in humans and in animals—to the point where birth rates of polar bears or orca whales would go down. They might survive to adulthood, but their immune systems would be compromised and they would die of some disease that normally they might be able to ward off, because they have such high levels of "chemical X" in their body. It has been documented in some studies of fish that they develop both sex organs, affecting their ability to become male or female. One of the sources of this problem is the high level of some of these chemicals found in the fish. These chemicals can impact the endocrine system of humans and animals. If we ignored this or dismissed it, the problem could be much worse in the future than it is today.

MM: After the symposium in '98, what was your next action?

MG: We used the symposium to ask the question, should we do something about this or not, and the feedback was, yes. OK, if so, what? Well, let's do a strategy or some type of plan. What I recommended to Bill Backous and the senior management was to go around the state over the next few months and take what we learned at the symposium, share that at public meetings, get further feedback, and then develop a plan, put that out for public comment, and then refine that. So, in early 1999, Tom Fitzsimmons, Bill Backous, Sheryl Hutchison, the agency's communications director, and I went around to five public meetings in Bellingham, Seattle, Vancouver, Spokane, and Yakima. We pretty much said, this is what we're hearing about an emerging problem. It's what we heard from people at EPA and the Great Lakes and Canada. This is the problem, what should we do about it? The response was, well, let's put together some type of plan or strategy. In the 2000 session, the Legislature also got wind of what we were doing. There were some legislators who were very supportive of this, some who were kind of skeptical and some who were outright opposed. Their issue was, we didn't tell Ecology to do this, but they're going ahead and doing it anyway – why is this? This isn't their normal mode of operation. I mean, some

legislators even went so far as to say, we didn't give you the authority to even talk about this issue, but you're doing it anyway, why is that? Some of us believed we had the authority. Not that we were trying to be abusive or flippant about our authority, but we had a responsibility to let the people of Washington know that this was an emerging environmental issue and to ask them what we should do about it.

MM: What happened in terms of the Legislature giving you support? How you were able to do the work?

MG: During the 2000 legislative session, the Legislature directed us to develop a long-term strategy to address PBTs in the environment and to submit the strategy by December of 2000 for their review. There wasn't any money attached to do this strategy. So that was the compromise between those in the Legislature who said, Ecology should do this, and those who said, well, they need to have some direction. If they're really committed to doing this, we're not going to give them any money, but let's at least give them a direction.

MM: So, this is two years post EPA's strategy?

MG: Well, roughly a year and a half. I think this was the spring of 2000, and EPA announced their strategy in November of '98. Keep in mind that we have a strategy, which was finalized in December of 2000. We got that legislative commitment. The EPA National PBT Reduction Strategy is still a draft as we speak.

MM: Why didn't their strategy, now six and a half years later, ever become finalized?

MG: I don't know exactly why it's still a draft, and all the chemical action plans they completed are still drafts except that there's considerable political pressure on EPA, with the current White House Administration and industry taking steps—I don't know the exact steps—but it appears they're taking deliberate steps to have this move as slowly as possible. At least that's my view.

MM: How was it you were able to turn yours from a draft strategy into to a finalized strategy in just a year?

MG: Well, we received direction from the Legislature, and we took it very seriously. The agency took it seriously enough that these six programs that I mentioned kicked in the necessary money to keep this position funded, the position I'm in, and gave me the support of an internal technical committee, which included representatives from those six programs, toxicologists and other scientists. With the help of that technical committee, our plan was drafted in August of 2000. Then we took the draft around to the same five cities and had public meetings. Based on that public comment, we turned around and issued this final proposed strategy to the Washington state Legislature in December of 2000. So, at the start of the January 2001 legislative session, they had this document. Of course, they had hundreds of other bills and issues to deal with, but this went through the appropriate committees in the Senate and the House. At the same time, our agency had a budget proposal, and the governor agreed to include this in Ecology's budget. We asked for $1.2 million for the '01-'03 biennium to implement this strategy, and at the end of the session we got $800,000; so that's better then zero, which is what we had before. We started moving forward with drafting a list of PBTs and looking at mercury. The next year, in the 2002 session, the Legislature felt that they should give us deliberate direction again. So, in 2002,

we were directed to develop a mercury chemical action plan and involve an external advisory committee in that plan's development process, and we did that. We issued a draft Mercury Chemical Action Plan in September 2002, and a final plan in January 2003. We're currently implementing that plan.

MM: I noticed that, as part of your strategy, you targeted nine PBTs of concern. I've read some lists that had as many as 27 PBTs of concern. How did you decide upon these nine?

MG: The list of 27 you refer to was probably the first list of PBTs that we knew of, developed by the Ontario Ministry of Environment in 1994. That was basically in a book, like our plan, with all the rationale of why they selected those chemicals and not others. That list was never finalized in the Province of Ontario. I believe the primary reason that list was never finalized was that it was obviously controversial. That controversy happened around the time the Ontario government changed from one political party to another in terms of who was in power. Basically, that list has been a report on a bookshelf ever since. Our current list, as mentioned in the strategy, is nine, and we also mention in the strategy that we were going to go through a process to come up with a longer list. We went through that process. One of the challenges we found in developing—not so much in developing the strategy, but certainly implementing the strategy—was to come up with a list of chemicals. A list is a very controversial thing.

MM: What are the original nine PBTs and their sources?

MG: The first one is dioxins & furans. This includes pentachlorophenol-treated wood, municipal- and medical-waste incinerators, forest fires, cement kilns, coal combustion, residential and industrial wood combustion, residential waste combustion, diesel and gasoline fuel combustion, bleached-chemical wood pulp and paper mills. The second is mercury, which, as I've already mentioned, comes from coal-fired power plants; disposal of fluorescent lamps, thermometers, thermostats, manometers, and switches; and medical-waste incinerators. PCBs, the third on the list, enters the environment from the disposal of fluorescent lamp ballasts, older televisions, appliances, transformers, and capacitors. Benzo(a)pyrene, number four, has as its sources the internal combustion engine, used motor oils, forest fires, residential wood and waste combustion, residential and commercial cooking of meat products. Number five, hexachlorobenzene, previously used as a pesticide, is currently manufactured as a by-product or impurity in the production of chlorinated solvents, pesticides, and in other chlorination processes. Six, seven, eight and nine are all formerly widely used pesticides, now banned in the U.S., but residual levels are still present in soils, sediments, waters and fish tissue. These include aldrin/dieldrin, chlordane, DDT, and toxaphene.

Containers of Chlordane, a commonly used pesticide classed as a Persistent Bioaccumulative Toxin.

MM: Why did you start with mercury, and why focus on one element, or one chemical, at a time?

MG: We would like to do more chemicals, but it's a question of how much funding we get. In the current political climate, with less at the start of this current '03-'05 biennium and the state budget looking at a $2 billion shortfall, asking for $5 million to do a 10-chemical action plan doesn't fly very well, politically. Yet, to ask for enough money to do one, or maybe start with asking for enough money to do two and then getting one, at least that's a step in the right direction. So, that's why we've generally been pretty slow and deliberate. Secondly, people in the state Legislature are always changing. Every session you have new people. Some people don't run for reelection, some lose their seat. You have new committee chairs. Sometimes you have different parties in the majority than the previous session, and so you have to educate those people. Sometimes they're supportive; sometimes they're not. You have to work with that dynamic, and just when you have the latest environmental committee or natural resource committee educated, and, for lack of a better term, brought around on this issue, the next session it's a whole new group of people. Or half the people are gone, and half the people are still there.

So, in many ways, it's about making sure the right people are supportive. For those who maybe are not supportive, it's important to know why they're not supportive and then help give them information to hopefully gain their support at the same time they're dealing with a million other issues in a 105-day or 55-day session. At the end of the day, you have a budget or you don't have a budget. So, at the end of the 2002 session, we had this deliberate direction to do mercury. We established an environmental external advisory committee involving agriculture, business, environmental interest groups, community groups, public health, and one other sector, local government, and we invited the tribes to participate. The tribes elected not to participate. The advisory group we established met three times through the course of the development of this plan. We had enough funding to hire an individual to actually draft the plan. Serendipitously, that person, Cherie Peele, had, a year prior, written the Massachusetts Zero Mercury Strategy. The other critical decision we made, since I'm on the topic of the Mercury Chemical Action Plan, was to recommend that—because mercury is a public health issue besides being an environmental issue—this plan could be co-authored by the Department of Health. So, early on, during the development phase, we brought Health on board. In fact, the Legislature told us to give some of our money to Health to help with a plan. So, this and future plans would all be joint Ecology and Health documents.

MM: How common is this for the Department of Ecology to create joint documents, action plans in this case, with the Department of Health?

MG: Well, with Department of Health, I don't think it's very common. Most agencies generally do things by themselves. In this case, we recognized that it delivers a very powerful message about an issue, such as mercury. Now we're currently doing a plan on the PBDEs, the toxic flame retardant. We're two agencies working together on this to raise public attention, to point out the alternatives, and to identify where the sources are and how they can be reduced. In this case, these chemicals impact both human health, or public health, and the environment, and our charge is the environment. Even though our mission is to protect public health and the environment, the Department of Health really has the responsibility to determine what is a threat to public health and what is not. We don't. We address the environmental threats.

MM: My concern for people reading this is that the term PBTs, and what happens when PBTs enter our world and our bodies, may still be somewhat abstract. I wondered if, just for a second, you could talk about where mercury is found and how it affects people, just so we have an example. Also, I know it's different from other persistent bioaccumulative toxins because mercury is an element, as opposed to a chemical, and it affects our neurology, right?

Mercury, a metal which is a Persistent Bioaccumulative Toxin, is used in fever thermometers, which are now being replaced by safer digital thermometers.

MG: I'll respond to that, and I'll back up, but I also want to talk about why we chose mercury over the others we had identified in our strategy. We chose mercury for three primary reasons: One, it's used in a variety of consumer products. Many of those products people don't know about, but many products they do. Everybody's seen a mercury fever thermometer, but mercury is also used in thermostats. It's also used in blood pressure measuring devices and in fluorescent lamps. It's anywhere where there's an electrical switch—in the toaster, the iron. Not that the use of that mercury is dangerous at that point in time in that product's use, but all of those products have an end of life. In most cases, if not all cases, they're thrown away. We throw away 10 million fluorescent lamps a year in Washington. That cumulatively releases 500 pounds of mercury into the environment. So, for one, it's in widespread consumer product use. Secondly, the average citizen can visualize mercury. We've all seen a thermometer. We've all seen that little glob of mercury in the high school chemistry laboratory. We know what mercury is; we might not know what a dioxin is, or a PCB, except that it's a long chemical classification that is maybe a liquid, and we don't even know what color that liquid is, or whether it vaporizes. The average person doesn't know that. Thirdly, mercury is in fish, and there have been fish advisories in Washington and elsewhere about the levels of mercury in fish. We felt that it was the right opportunity and literally the highest priority that we should focus on. Earlier, as we mentioned in this interview, we looked at dioxin. That is a high priority chemical, but with the current political climate and concern about dioxin—not so much that I think people disagree that it's a bad chemical—there are people out there who feel that their industrial sector may be unfairly targeted at the expense of others that don't have to deal with dioxin, whereas maybe this sector does, and there needs to be a balanced playing field. So, we went with mercury.

Mercury is a neurotoxin. In high enough doses, it impacts the nervous system, it impacts the heart and the kidneys and the brain. It bioaccumulates in fish and animals.

What does mercury do? Mercury is a neurotoxin. In high enough doses, it impacts the nervous system, it impacts the heart and the kidneys and the brain. It bioaccumulates in fish and animals. One of the more alarming studies that has been done is about fish at the top of the food chain, your shark and swordfish and tuna fish. Even canned tuna can be of concern, to the degree that our own Department of Health, the co-authors of the action plan, issued advisories on just how much canned tuna

is safe to eat, especially for women of child-bearing age and their children. Tuna is a very healthy food, and fish is a good food, and Health had a real dilemma here. Fish has the right types of fats and proteins that any person should eat, but certain fish, those at the top of the food chain, can accumulate mercury so that too much of that is not good.

MM: It sounds like part of your strategy is to educate the public and industry in terms of alternatives. So, for industry, you're saying, OK, instead of using mercury, try this. My question is, how do you educate the individual?

MG: The PBT strategy is, in many ways, a pollution prevention plan. It's much more cost-effective, a lot cheaper, to prevent pollution from occurring in the first place than to address it or reduce it or clean it up. We're primarily educating the public just by keeping attention on this issue. There are other organizations out there because of this strategy and in support of this strategy, such as your Washington Public Interest Group and the Washington Toxics Coalition. One of the main focuses of the Toxics Coalition is consumer products such as pesticides, how using certain chemicals can impact humans, small children, fetuses, and the animal kingdom, but primarily humans, ranging from fetuses to adults. Those public interest organizations are doing a lot of the publicity around the issue. One of our agency goals is to support sustainable communities, fostering a product stewardship ethic. The state of Washington buys a lot of stuff: cars, office furniture... There are procurement contracts where the Department of General Administration buys stuff. Ideally, we'd like our purchasing not to include buying mercury-containing blood pressure cuffs for Western State Hospital or other medical facilities or prisons where there are medical facilities, or that we're not going to buy office furniture that's got toxic flame retardants, or that type of thing. If there's a provision saying that we're not going to buy products with certain components, that's a very powerful tool. Large companies like Boeing, or Microsoft, or even the City of Seattle could or are doing the same thing. They all have a preference for lower mercury fluorescent lamps rather than higher mercury ones. Maybe they'll specify that the computers they purchase don't have certain flame retardants in the plastics, that type of thing.

MM: I realize you're in the middle of your strategy to reduce PBDEs, toxic flame retardants, but I wanted to go back to mercury for a moment, because you worked on that first. How do you know you've been successful once you name a chemical or an element, in this case mercury? How do you know you've been successful in terms of impacting its reduction?

MG: Well, we feel we've been successful and that we've certainly raised the public awareness about mercury—both Ecology and Department of Health—to our respective audiences, which are the public, but in different ways. We've been successful in that we have some deliberate efforts; for example, we have an agreement with the State Dental Association. We're not telling them not to use amalgam fillings, but to do a more complete job of capturing and remove fillings before they go down the drain and back into the environment. For example, we mailed a poster, put out jointly by Ecology and the State Dental Association. It was mailed a couple weeks ago to every dentist in the state. By now, it should be posted in their office for them and the hygienist and the dental assistants to refer to on proper ways to dispose of removed fillings and other hazardous materials in the office: the developer, the fixer they use when they take X-rays, and a few other products. So, that's one example of a success. The goal is by August of next year in 2005, every dental

office in the state will have a certified amalgam separator installed, and that's expected to reduce the current mercury load of about 450 pounds to close to zero.

Another area that we're focused on is increasing fluorescent lamp recycling. Currently it's perfectly legal for you and me to take them and just throw them in the trash, or even for a large building like Ecology to just throw them in the trash. We have 7,000 fluorescent lamps in our headquarters building alone, but we recycle them. If we can get a statewide recycling rate from currently 20 to 25 percent up to like what Minnesota has, about 80 percent, over the next few years, that's less mercury into the environment. Thermostats, thermometers, blood-pressure cuffs—these are all items with non-mercury alternatives, and which we'd like to see properly recycled. In about a year or two we'd like to go back and access the numbers we calculated in 2000 and see how successful we've been.

MM: I heard that earlier this year, Governor Locke issued an Executive Order to Ecology to take some additional steps with PBTs. Could you elaborate?

MG: In January, the governor issued an Executive Order that directed Ecology to do a chemical action plan on PBDEs, the toxic flame retardants, and to draft a regulation on how Ecology will create a PBT List and how we will do chemical action plan, and continue to implement the mercury chemical action plan. The Legislature provided funding for the final year 2004 of the '03-'05 biennium to do these things. So this biennium, this year basically, we have authority from the Legislature and direction from the governor through an Executive Order to develop, through formal rulemaking or regulation, a list of PBTs, actually to develop a draft list and submit that to the Legislature in 2005. In fairness to business and industry and the agricultural sectors, they do not like to see some of the chemicals they use on a list of chemicals that are persistent bioaccumulative and toxic because that puts those chemicals in a negative light.

MM: In terms of reduction, I read in your strategy, there's something called a "vision of change." You talk about going from grappling with the issues, going from single-media decisions to multimedia decisions. Can you explain what that means in terms of PBTs?

MG: Agencies like Ecology or EPA—all environmental protection agencies, all the health departments, all of us who work in those agencies—have made our careers in this sector. We're all trained to look at an environmental problem primarily in one media. We have a Water Quality Program; we have an Air Quality Program; we have a Toxics Cleanup Program, but predominantly the historical pollution problems are in the soil, air, water, and sediment. So, somebody in the Water Quality Program does a water-quality permit, and they're trained to make sure that the conditions of that permit are met. A permit is, for lack of a better term, a license to pollute, but to pollute in a controlled manner, and so the discharge limit of chemical X, Y, and Z has to be at this level. If you're above that level, it's like you're exceeding the speed limit, you get fined or you get in trouble and pay a penalty. The challenge, or the problem that we're realizing is that that may be safe for that point, but for PBTs, because they can then be released at below the detection limit or below the permit level, they get into the environment, and move up the food chain, bioaccumulate, get into the atmosphere, move over here, and they will stick around for a long time.

Agencies like Ecology and EPA need to look at our environmental challenges. We have to look at air, land, and water. The longer you work in an agency like Ecology, you develop a wisdom, or with some who've retired, I've come across what I think of as their wisdom

statements. I recall some individuals saying, you know, in some ways, all we're doing is moving pollution around. In the early days of the Department of Ecology and EPA, the early '70s, people didn't want to see dirty smokestacks and they didn't want to see polluted water; so, they treated that. They captured the pollutants, and they threw them in the landfill, or, in a sense, buried the problem. So, that cleaned up the water and it cleaned up the air, but it caused these other problems in landfills that seep back down into groundwater and come back out and contaminate wells, that type of thing. We still do that, move pollution around, but to a greater degree. We also recycle it. So, back to this paradigm shift—thinking of why we need to deal with this legacy of chemicals—part of that paradigm shift is the realization that we need to look at the whole picture, not just soil or water or the air.

MM: In comparison to the progress other states may be making regarding the reduction of PBTs, can you tell me where Washington stands?

MG: Well, this is the first state-level PBT strategy in the 50 states. There is a national PBT strategy. Actually, first there was an EPA Region 5 strategy in the Great Lakes area, kind of tied in with Environment Canada and the International Joint Commission. EPA headquarters took that and made it a national strategy, which is still in draft form. They just kind of stamped it, the same list of chemicals. But going back to '98, our agency made the decision that we're going to do a state strategy. We're the first state to do that. Other states have done strategies—Alaska, Oregon, to some degree, California, New Hampshire—that have been somewhat modeled after our state strategy. Some local governments, like the City of Seattle, have done a strategy, not so much a PBT strategy, but they've used the PBT strategy to help in terms of product stewardship and purchasing, selecting which products they'll preferably purchase and which they will try not to purchase. Clark County, in the City of Vancouver, has done the same thing.

Clearly there is an opportunity there to provide technical assistance and education to the Chinese. For example, hey, we'd love to buy your products. For the most part, they cost less than they would to make them here, but let's make sure that those products don't have certain chemicals in them or that you don't use certain chemicals in the process of making those products.

I think we're going to see more of that happening at the state level. At the same time, nationally, we're going to see more attention. The area where we're going to see the most attention is not so much the banned chemicals that are no longer in use like the DDTs and PCBs, but the ones that are still in use or currently used, like mercury and lead, polybrominated flame retardants, possibly cadmium, and obviously dioxin. At the same time, there are opportunities out there in a global sense. We are all aware of the emerging and growing Chinese economy, and the Japanese and Korean economies, too. Clearly there is an opportunity there to provide technical assistance and education to the Chinese. For example, hey, we'd love to buy your products. For the most part, they cost less than they would to make them here, but let's make sure that those products don't have certain chemicals in them or that you don't use certain chemicals in the process of making

those products. So those are some opportunities where an agency like Ecology can be a leader and has been a leader.

MM: That reminds me, I read something about the United Nations bringing attention to PBTs globally. I understand the EPA is the federal, national body for the environmental issues, and then there's Departments of Ecology or Departments of Environmental Quality, state to state. What is the international body that governs environmental issues, and what have they said about PBTs?

MG: The international body is UNEP, or the United Nations Environment Programme. I believe it was in '97 that they proposed an international treaty on persistent organic pollutants, or POPs. It's called the POPs Treaty, and it required 50 nations to ratify it, and that actually happened in May. I think France was the 50th nation, so it's now a treaty in effect and it's an agreement between those 50 nations that they, as nations, will make deliberate efforts to reduce the use of a list, and they're called the "dirty dozen."

MM: Oh, they don't use the same 12 as the EPA?

MG: They don't use the same 12 as EPA because it's only organic pollutants. So mercury is not on the list because mercury is not an organic chemical, but it does include dioxin, and it splits out dioxins and furans, so that's two. They include the pesticides aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, and toxaphene; the combustion by-products dioxin and furans; and the organic chemicals PCB and hexachlorobenzene.

MM: Was the United States one of the signers to the POPs treaty?

MG: Actually, very early on in the Bush administration, in fact, he had a big Rose Garden press conference, saying that the United States will sign on to the POPs treaty. There's that commitment there, but Congress has to ratify that decision, and, to date, they haven't. It's my understanding that the United States government, or the administration, is only supportive of agreeing to the 12 chemicals on the list and are not supportive of any additional chemicals; whereas, with UNEP, and I think most of the other nations would go along if lindane or the PBDEs, polybrominated diphenyl ethers were added to the list. Well, the United States government is not supportive of that. That's my understanding.

MM: Is there a potential, after the treaty has been ratified by the 50 nations, that UNEP could add some additional POPs to the list, and, are you saying the U.S. is uncomfortable with that?

MG: Yes, that is my understanding. The U.S. government does not want to consider any additional chemicals beyond the dozen that are already on the POPs List.

MM: So, in regard to models for PBT reduction strategy, it looks like there were some out there; however, they didn't exist on the state level, is that correct?

MG: Yes, especially at the state level. In some ways, because we're doing it at the state level, we're kind of forcing things or maybe keeping EPA honest, you could say. At the same time, one of the criticisms we get from American business and industry is, well, EPA's doing this, why should the state of Washington do it as well? You're duplicating their effort. We respond back, well, no we're not, because we believe there are problems that may be more unique to Washington that aren't unique elsewhere, and EPA's strategy is a kind of blanket

for the whole nation. For example, we have the similar laws to the Federal Clean Air Act and the Clean Water Act and for the Resource Conservation Recovery Act and Superfund. Each state has its own state laws, and so our strategy precedes EPA's approach because, although there's an official PBT program in EPA, they're still working on finalizing the strategy on PBT reduction.

MM: How do you know if you've been successful, or if you will be successful down the road, and what are the forces you're working between?

MG: Five years ago, the term PBT was just another alphabet soup term. Even though it's a difficult term for the average person, it resonates a little more with more people today, and that all takes time. For example, if you and I were having this conversation, say, 19 years ago in this room with the door closed, it wouldn't have been beyond the norm for either you or me to be smoking a cigarette, and the other person would not even be concerned about it. As we drove to work on that morning, in 1985, we may not have worn our seatbelts, and certainly the car that we drove in '85 didn't have an air bag. That was considered unnecessary and too expensive. If we had children at that time, or even if we rode bikes at that time, our children or we ourselves would not have worn a bicycle helmet. How did we get from then to now? There was a paradigm shift, and, in that process of these behavior changes I just mentioned, how many people lost their jobs, or how was the economy negatively impacted? So, the goal of this whole PBT strategy is to not only to reduce these legacy chemicals, but to protect our environment, or enhance it, for future generations in a way that does not negatively impact the economy. Now, there's resistance to that, but there's also support. That's the kind of tension I work in the middle of.

I grew up here in Washington, lived here most of my life. I'm raising a family here, and I plan to retire here, and die here. Part of this is a calling, to leave the world a better place then when you entered it. So, my chosen vocation is to do that in the environmental spectrum, and certainly a lot of people who work in this agency have similar core feelings

MM: When you retire from this profession, considering the work you're going to do, or thinking maybe this will be the work you do until the end of your career, what do you hope to have accomplished in terms of ridding the world of PBTs or reducing PBTs?

MG: When I was going to college, I wanted to do something about the environment or human environmental sector. I didn't know exactly what at the time, but certainly working for Department of Ecology, when the opportunity came along 20 years ago, it looked like a great way to make a difference. I grew up here in Washington, lived here most of my life. I'm raising a family here, and I plan to retire here, and die here. Part of this is a calling, to leave the world a better place then when you entered it. So, my chosen vocation is to do that in the environmental spectrum, and certainly a lot of people who work in this agency have similar core feelings, even though our personal views about politics or religion or how we raise children may vastly differ. People here work here because they want to make that type of difference and in the government sector, whether it's local, state or federal government, there are opportunities to do that. It may not look like it on the

outside. When you try to describe your job to somebody outside of government, they may not see that impact, but when you're inside the agency and you prepare something that gets communicated to the governor or enacted by the Legislature, you recognize you're part of that difference, that what you've done can lead to a positive change. The challenge of working in that type of environment is you have to look long-term. This doesn't happen tomorrow. This isn't about shipping something out tomorrow or having a wedding cake decorated by Saturday. This is looking long-term, and hitting the roadblocks along the way. When I look back at the end of my career in another 15 or 20 years, I want to be able to say that in a small way I made a difference, and not just in the selfish way. I mean, it's not just me but my work as part of a larger group. So, part of that difference is trying to leave this environment as good as or better for my grandchildren's grandchildren. I'm thinking that far out, 100 to 150 years out, seven generations. There's a Seventh Generation product line which is a spin-off of an Iroquoi statement that people should live—I'm not quoting it exactly—but people should live their life so that it doesn't have a negative impact on the next seven generations.

Unearthing Toxins in Water, Fish, Sediment, and Soil

An interview with Bill Yake
June 15, 2004

Yake

Position held at time of Interview:

Retired, Senior Environmental Scientist, Washington State Department of Ecology, 1977 - 2003

Education:

- Master of Science in Environmental Engineering (Water Quality), Washington State University, 1977
- Master of Science in Environmental Science, Washington State University Environmental Sciences, 1972
- Bachelor of Science in Zoology, Washington State University, 1969

Maria McLeod: Bill, according to your resume, you began with Ecology in 1977, working on stream patrol, and now, 27 years later, you are retired, interested in natural history, a poet, zoologist, and when you worked here, an environmental engineer. Among other roles, you served as part of the precursor committee to what is now the PBT Committee, what was known as the Chlorine Committee. I'm interested in the history of that group, your work, and how that all evolved into the PBT strategy the agency is pursuing today. So perhaps we could start there, at the beginning, more or less?

Bill Yake: OK. Well, after I got my Masters in Environmental Engineering at WSU, my first job was as something called a "stream patrolman" during the drought of '77, working mainly in Whitman County. Soon thereafter, I got a call from Dick Cunningham who was section supervisor of the Water Quality Investigation Section, which was part of the Water

Quality Program. They were looking for somebody to head up a small group that did ambient monitoring—water-quality monitoring—statewide. They also did Class II Inspections, which were inspections of permitted facilities that discharged wastewater, making determinations of whether or not they were within their permit limitations. So I did that, and then the job kept evolving, but I stayed with pretty much the same group, even though it moved into different parts of Ecology.

MM: What parts of Ecology did you move to, regarding programs?

BY: The Water Quality Investigation Section, which had this monitoring function, eventually split off from the Water Quality Program and joined the laboratories, forming a new program that was called Environmental Investigations and Laboratory Services—EILS for short.

MM: . . . which became the Environmental Assessment Program, which is now home to the PBT strategy?

BY: Right. So, I worked with that monitoring group. I was the unit leader initially, and then became a section supervisor of a larger group, which included some toxics investigations and groundwater investigations. It also included facility inspections and monitoring, but there were a series of reorganizations that kept changing the scope of the work. Eventually, in the mid-'90s, I took a position as a senior scientist, doing special projects and that sort of thing, and kept at that through the rest of my tenure.

MM: I'd like to go back to your early work for a moment. When you say you did ambient monitoring of the water, what were you looking for, what kind of testing?

BY: Well, a wide variety of things. It depended. With ambient monitoring there are a number of fixed stations: freshwater and marine water. These were sampled monthly, and there were set parameters that we checked—temperature for one. For rivers, it included flow, how much water was in the stream, the concentration of dissolved oxygen, and various nutrients like nitrate, ammonia, phosphorus, and bacteria—fecal coliform bacteria. Those were some of the basic ones. Eventually, we began testing for things like PBTs, although that was different from ambient monitoring, as they are often very difficult to detect in water, but accumulate in the tissue. We took fish and sediment samples for those.

MM: So in the early days, before you could measure PBTs, you were looking for toxins in the water, and you mentioned finding some naturally occurring elements as well, like nitrates. Were you worried about balance within the water? Can water have too many nitrates?

BY: Yes. If you end up with high concentrations of nutrients, you'll see algal blooms. The water will turn completely green like pea soup. Some of those algae can be toxic; that whole process is called eutrophication. It happens in lakes and it happens in streams. So, we monitored for nutrients to keep tabs on the agricultural fertilizers and other sources that can increase nutrient levels.

MM: Are you referring to agricultural runoff?

BY: Yes, or even forest runoff. In growing timber, they spread fertilizers on forests as well.

MM: So, you started doing this kind of work in '77?

BY: Yes, and it had been going on for a number of years before that.

MM: OK, so I'm imagining you, early on, measuring for these pollutants in the water, and I wonder two things: One, how the tools of measurement changed over the years that you were working for Ecology, and, two, how the things that you were looking for changed, or if the menu of things you were looking for increased or evolved over the years?

BY: There was a constant evolution in analytical techniques at the laboratory, and that evolution improved precision and accuracy of the measurements. As far as qualitative changes, one point of fairly major change happened, roughly in the early to mid-'80s. EPA came out with a list of chemicals that they called priority pollutants. There were something in the neighborhood of 120 of those. It included a whole list of trace metals, heavy metals, some pesticides and about a hundred other organic chemicals. At the same time, EPA also started pulling together information on the toxicity of these, generating what were called criteria documents, detailing all the information that was available: the toxicity of these chemicals to aquatic life, what was known about the extent that the pollutant got into the fish—and would be of concern for eating those fish—and what kind of concentrations would be a problem in drinking water. Many of these contaminants were very difficult to detect in water because they weren't very water-soluble. They were the kind of chemicals that tended to accumulate in fat, in the fatty parts of fish for instance, or tended to attach to soil particles and sediments.

MM: Can you put this knowledge and this list in a kind of context for me, historically? What were the environmental issues at the time?

BY: In terms of that list, we are talking about things that built up in the food chain, the kind of effects that caused a problem with DDT and eagles, like eggshell thinning. These were issues people were finding out about—beginning in the late '60s, early '70s—the issues explored in Rachel Carson's *Silent Spring*. A fair amount of that knowledge had already been established by the mid-'80s. Originally, my job wasn't really focused on toxics, except for the metals, to some extent. We began by taking samples of sludge at sewage treatment plants and analyzing these for metals, because metals were an indicator that there might be a long-term problem at that facility.

MM: By saying sludge, you mean the immediate output?

BY: No, I am referring to the solids that were separated from the wastewater before it was discharged. Then, of course, they'd have to do something with that material. Sometimes it would go onto crops as compost, that sort of thing.

MM: What were you finding in that sludge, and if you are saying that it was being used as fertilizer, were crops and soils becoming contaminated?

BY: Well, the main problem we were focusing on was this: Sometimes there are spills at the industries that discharge wastewater to sewage treatment plants. But if you sample for metals only one day every several years, you're probably going to miss that spill. The metals can upset a treatment plant so it doesn't work right. Fortunately, or unfortunately—depending on how you look at it—the sludge stays in the plant a lot longer than the wastewater does. So, you analyze the sludge, and you get a better idea of the

history of metals contamination at that plant. People weren't really thinking about soil and crop contamination that much, although there was some concern about cadmium uptake in crops, as I remember. Sludge has lots of nutrients; that was the attraction for spreading it on cropland. So, the question of soil and crop contamination went pretty much unaddressed.

MM: So what was the legislative backdrop to your work in the mid '80s, and how was that related to the discovery of contaminants and the ability to clean those up?

BY: In the mid-'80s, there was some federal legislation coming down through the EPA. There was Superfund legislation, CERCLA (Comprehensive Environmental Response, Compensation and Liability Act). Also, there was a parallel state law. So there was a lot of concern about an interest in contaminated sites. Whether it was dioxins, PCBs, DDT, or these trace metals that we were talking about, Superfund came in and there was an interest from that standpoint. There was also some PCB legislation. In fact, well before I joined Ecology, I remember the first talk of PCBs; that was when I was working in Spokane for Spokane County Air Pollution Control, about '72 or '73. The big push, at least from my perspective in the mid-'80s, was the work being done by National Oceanic and Atmospheric Administration (NOAA) in Puget Sound. I remember particularly Dr. Donald Malins and his group, looking at sediments and lesions in fish that lived on the bottom of Puget Sound. Some whales also died. EPA did an investigation in Commencement Bay in Tacoma and sampled a lot of sediment up and down the waterways. There were pretty high concentrations of contaminants there. So the confluence of all these things really raised the concern level here in Washington. There was a real flurry of activity and interest and focus on that kind of contaminant, particularly in Puget Sound, in the mid-'80s.

MM: What was the talk about, in terms of persistent pollutants?

BY: PCBs, arsenic, lead, copper, polyaromatic hydrocarbons, (PAHs), or polynuclear aromatic hydrocarbons, abbreviated PNAs—they're the same thing as PAHs, products of coal burning, auto and truck emissions, used motor oil, and both controlled and uncontrolled burning.

MM: What's the historical source for PCBs, which are currently banned, I understand, but persist?

BY: PCBs are artificially created organic chemicals. The abbreviation stands for polychlorinated biphenyls. They were used in a number of applications usually associated with the power industry, and because they didn't burn, or they didn't burn easily, and were in an oil-like form, they were used in things like transformers, so that when transformers up on power poles got hit by lightning, they wouldn't explode and burn. PCBs also were used in electrical motors and that sort of thing, as a coolant to prevent the overheating of the electrical current.

MM: So what kind of criteria was set up in the early days, for these types of contaminants?

BY: That was one of the early questions. EPA came in and sampled all these sediments, and there were really high concentrations, which was bad, but you didn't know how bad because, of course, there were no sediment criteria. So, you didn't really know what a bad concentration was, which raised all these questions; how much contamination is a problem,

which became the how-clean-is-clean question. Jim Krull, a former engineer at the Southwest Regional Office, was the first person I ever heard use that phrase. He probably coined it. Jim was responsible for a lot of Ecology's early thinking and action on toxic contamination, especially in Commencement Bay in Tacoma. Anyway, that was an important issue around here for a number of years. That, and where was the stuff coming from? Was it still going into Commencement Bay, or was it something historical? How do you clean it up? What kind of problems is it, or is it not, causing to the critters out there? Is there a human health risk? All these questions were essentially new, and we had to deal with to the extent we could. They certainly had everyone's attention.

MM: Do you remember the sampling you did in those days, what the water looked like?

BY: I remember the Georgia Pacific facility, a pulp and paper mill up in Bellingham. They had what was called a mercury cell for generating chlorine. My recollection is that they had a wet scrubber associated with this mercury cell so that the water went down through the air exhaust and then to a pond to settle out the contaminants it collected. Well, on the bottom of that pond you could see mercury, you could see the globules on the bottom.

MM: Like the substance you'd see in a thermometer?

BY: Yes, but a lot more. So, that was one case in which it was visually apparent. Sometimes you would see seeps in the intertidal zone with strange looking water coming out of them. It was hard to tell, in some cases, whether that would be the natural organic decay of sediments or what it was. One case I can remember that was quite clearly not natural was over at Eagle Harbor on Bainbridge Island, near a facility for wood treating. A lot of the wood treatment included creosote, and creosote is, essentially, made up of PNAs, or PAHs. Creosote had gotten into the groundwater and was continually bleeding out through the intertidal zone into Puget Sound. So if you went out there at low tide, you could see these rainbow sheens running out of the beach and into the water.

A lot of the wood treatment included creosote, and creosote is, essentially, made up of PNAs, or PAHs. Creosote had gotten into the groundwater and was continually bleeding out through the intertidal zone into Puget Sound. So if you went out there at low tide, you could see these rainbow sheens running out of the beach and into the water.

MM: A wood-treating operation was generating this?

BY: Yes, wood treating. Telephone poles and fence posts were treated in those days with creosote, a black tarry substance. So some things you could see, but a lot of the contamination wasn't the kind of thing that was readily visible in the environment. You had to depend on analytical results. And because we couldn't see the contaminants, we needed to do a lot of sampling to figure out where this material might be coming in—if it was still coming in—because there were, for instance, hundreds of little drainages spilling into Commencement Bay. We were trying to find out which ones of those were contaminated, with which chemicals, and track that contamination back to where it was coming from.

MM: Are all these things you're seeing, such as the creosote, are all these things what we would now consider persistent bioaccumulative toxins?

BY: Well, not all of them, but defining these various terms is one of the difficulties. What does it mean to be persistent? What does it mean to be toxic? How do you understand or define these characteristics? That's always been an issue: How toxic, what kind of toxicity, qualifies something as toxic? So, I would say that all of these chemicals were toxic to some extent. They were more or less persistent, some less persistent, some extremely. Some were bioaccumulative and some weren't. Something like PAHs, for instance, will bioaccumulate in invertebrates—shellfish, clams and what not—but the metabolic systems of vertebrates break the PAHs down. So, they may be bioaccumulative in one critter, such as clams, but they break down in another critter, such as fish. Another problem is that the process of breaking them down can actually, in some cases, lead to cancer. So, PAHs may be cancerous because of breaking down in vertebrates, and bioaccumulative, but maybe not cancerous, in clams. There are all these nuances.

MM: When you're making these discoveries, such as finding these mercury globules—and, of course, there are a lot of things that you couldn't see—but for the things you could see and the things you've learned about, what were the kinds of conversations between you and your co-workers during that era? Are you ever surprised by your findings or does it just become a daily kind of work activity that doesn't surprise you?

BY: It surprises you, I guess, to some extent. You never know exactly what you're going to find in the field. That's one of the attractions of the work. I remember when we were at Eagle Harbor, we ran into this fellow up there who was talking to us as we were sampling clams. He was telling us how he wouldn't worry about eating the clams, it's no problem, but then he had this really large goiter on his neck. So afterwards, I think there were a few ironic comments, like, "I'm not worried about clams. They won't affect me." That sort of thing. Once you get the lab results back, that's when you start putting all the pieces together and try to figure out what it all means.

MM: Would you make a link to human health effects when you were doing this work?

BY: In our write-ups of these reports we would compare the concentrations that we saw to concentrations that might be expected to create health problems in people. It was always a little dicey at Ecology because you had the Department of Health and the Department of Ecology, and the Department of Health's turf was human health. To some extent they sort of jealously guarded that, and if Ecology was seen as getting too much over onto that turf, sometimes problems would develop. It could be a little dicey to deal with the human health issue. Lots of times that kind of question would be referred to the Department of Health. Of course the Department of Health didn't really have the ability to control the release of those chemicals or, in lots of cases, measure them in the environment. So, we had these two different roles.

MM: Did you supply information to the Health Department? Is it Ecology's job to say, OK, this is where we're finding these contaminants?

BY: We would send them copies of our reports, but the working relationship wasn't always tight and smooth.

MM: Did that evolve at all over a period of time?

BY: I think it's improved a lot lately. It's probably got something to do with the laws that we were working under, the funding sources, the different educational backgrounds and what we've learned through that education, what kind of pressures we have from our respective publics, and then there's always the personalities. Sometimes the history between the two agencies can become part of the baggage, which can make it even harder to come back together.

MM: In terms of the focus on these toxins, the work you were able to do, what was the driver, and how did your work evolve in regard to substances that were targeted?

BY: First of all, there was a value to these various lists, because once a pollutant was on our list, the laboratories would develop a technique for measuring it, and the assumption was that people would focus on it. So, chemicals that were on a list got more attention than chemicals that weren't on a list. That first list—EPA's priority pollutant list—had a big effect in determining which chemicals we focused on. Next, a series of organizations tried to deal with the problems of Puget Sound, and one of those groups developed the Puget Sound Pollutants of Concern list. I created a matrix for these chemicals for the Puget Sound Water Quality Authority that summarized various characteristics of these chemicals. That was an intermediate list. From that we tried to define, OK, which of these chemicals that we've tested for are actually a problem and a concern to Puget Sound. These weren't necessarily the same ones we had a problem with in, say, Eastern Washington.

MM: Why, specifically, had the Ecology Chlorine Policy Committee formed?

BY: The Ecology Chlorine Policy Committee was created to deal with managing chlorinated chemicals, especially dioxins. Its scope evolved to become Persistent Chemicals of Concern Committee, and then the Bioaccumulative Chemicals of Concern Committee. Finally the effort came to be known as PBT Initiative, an acronym for persistent bioaccumulative toxics.

MM: OK, so can you just explain a little bit about, for the nonscientific reader, why chlorine? How does chlorine come to be in the title of the policy committee?

BY: At that time dioxin was strongly associated with the chlorine bleaching of pulp to make paper. Governor Lowry's office was getting pressure to do something about dioxin from environmental groups, and they wanted us to look at the question. At the same time there was this issue of paper: Should Ecology and other state agencies shift to using paper that wasn't chlorine bleached? The initial concern was pretty much focused on dioxin. So this committee was put together supposedly to deal with the question, what should we be doing about chlorine?

MM: Is chlorine a dioxin?

BY: No. In the process of bleaching the wood fibers, which is what paper is made out of, there's actually dioxin created, or rather dioxin and similar compounds. There are 17 different dioxin-like chemicals. Some of these chemicals are produced when bleaching wood fiber with chlorine. Then these dioxin and dioxin-like substances can end up in the paper. They can end up in the wastewater. They can end up in the sludge that you remove from the wastewater when it's treated. And that was a concern. The initial concern about

the dioxin went back to Agent Orange's use during the Vietnam War. It had all sorts of adverse effects on humans and other critters.

MM: What were the health impacts? Fertility, birth defects?

BY: Yes, and cancer. Concern about dioxin was associated with the herbicide 2,4,5T, which was the main component in Agent Orange. That was what was used to defoliate the jungles of Vietnam. So a large amount of dioxin ended up in the environment of Vietnam. Veterans felt that they had been harmed by exposure to that dioxin. A lot of the people who were concerned about dioxin were concerned about herbicide spraying in forests and what not, but also concerned about what is bleached, the paper bleaching process.

MM: And Washington state had many paper mills discharging to Puget Sound that used chlorine bleaching, correct?

BY: Right. It wasn't just Puget Sound, it was also the Columbia River and some other parts of the state.

MM: OK, so that's what began the chlorine committee, the chlorine policy work group, and you were on that committee. And when you were on that committee, in those early days, what was the focus of the work you did?

BY: Well, initially, as a group, we didn't really achieve that much. From my perspective, one of the things that resulted was an attempt to quantify the sources—at least what we knew about the sources—of dioxin in Washington state. That ultimately resulted in the Washington State Dioxin Source Assessment. Still, from my perspective, we didn't make much progress for several years.

MM: Why not?

BY: Ultimately, it's hard to determine motives, why we didn't really achieve a great deal. I didn't sense a change until one of our directors, Tom Fitzsimmons, actually took on this toxic chemical initiative as something that was important to his administration, something that he was going to attach his reputation to. Up until then, there wasn't much funding associated with it. You had people from a number of different programs who didn't have funding authority that was specifically linked to this effort. Each of them had a different perspective, a different agenda. There was no real way to manage their activities. They were there as volunteers and did what they wanted to do, and there was nobody to say, "This is what we need to have done, and we need to have it done by this particular time." So, things went slowly in circles.

MM: Was it professionally frustrating for you to not see progress?

BY: Yes it was. But my situation was, I think, better than that of a lot of the other folks because I did have some funding and my program's management was supportive of doing things like the dioxin source assessment. So, I had the time and the funding and the support to do some work that, very possibly, other people didn't have. One of the issues that most everybody recognized, I think, was summed up by Mike Palko, who, at the time, was head of the Industrial Section. He said something to the effect of, with these chemicals, we just keep pushing them around. If they're in the air, we take them out of the air and put them into solid form, put them in landfills or worse, put them on crops where they run off

into the water. If they're in wastewater, we take them out of the water and we get them into the sludge, and then we burn them. Burning may make more dioxins, and these get back into the air. So, each of the programs, whether it was Air, or Water, or Solid Waste, had their own sets of regulations that they dealt with. They each dealt with these chemicals in a different way, and there was no over-arching strategy to end this cycle from one media to another. And that was what we struggled with: How do we get some sort of a coherent approach here? I mean, a good reason why we spun in circles was because it was a very difficult problem. There were all these different regulations, each with its own approach to things, and most of these regulations were media-specific. Most of the programs in Ecology were established on a media-specific basis. One exception to that was the Cleanup Program. Because they were dealing with contaminated sites that could be in water—the contaminants could be in sediments, they could be in soil—they were having to actually deal with this problem on a regular basis. Other programs didn't necessarily have to deal with it. So if these programs have to solve a problem of contamination in water or air, and they move that contamination to some other media, it's no longer a problem for them. People began to recognize that as a problem, but a difficult one to solve. The fact that it's recognized now probably has helped begin to solve it, but we still don't have regulations or approaches in a lot of cases that deal with the contamination across various media.

Now there are exceptions to that, such as the PCB legislation, which took PCBs out of production and mostly out of use, and the federal legislation that took lead out of gasoline. If you remove a contaminant and are no longer discharging it into the environment, then that solves that kind of problem. But, of course, the state doesn't have that ability, or has much less ability, to remove a contaminant from the cycle of commerce.

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MM: It also seems with these contaminants, even if you could stop production in Washington state, they're still moving. I mean, there's nothing that can physically contain them once they're in the environment if they're persistent bioaccumulative toxics. They're just moving up the food chain, and not breaking down, or breaking down very slowly. So they can swim away in a fish and end up who knows where, correct?

BY: That's true enough. But contamination does, to some extent, get sequestered in sediments. That became an interest of mine. One way to learn the history of contamination is by taking sediment cores. You can date various horizons. So, you can tell how serious the contaminations was, say, in 1940 to 1950 , or in 1980. You can tell if we're making progress or not. The chemicals are, to some extent, taken out of that cycle by being incorporated into the sediments, particularly once they get down deep enough that you don't have what's called bioturbation, like the marine worms that churn up the surface sediments and take the pollutants into their bodies.

I mentioned the PAHs, poly aromatic hydrocarbons. If you look at the concentration of PAHs in a horizon from back in 1850, you'll see very, very low concentrations, probably

associated with forest fires. In 1880, 1890, you're getting more people into the region and, as a result, more coal burning. You see the concentrations creeping up. In the '20s and '30s it's really climbing, but then you get to about 1940, and concentrations start dropping. Well, that's about when people stopped burning coal to heat their houses, and we went to using electricity from dams and other sources for heat. So you can see how those changes in societal behavior can result in changes in the discharge of these various chemicals.

Another example is arsenic and lead and, to a large extent, mercury and copper. You see very low concentrations through the 1800s, but they start to climb in the early 1900s and peak in the '50s or thereabout. Then by the '60s or '70s they start to drop and that appears, at least in Puget Sound, to have been largely associated with the operation of Asarco. That was a big copper smelter, which processed ores that had a lot of arsenic and mercury in them. Once they put in some rudimentary pollution controls, that dropped contamination a bit and then, when they actually ended up shutting down, in the mid-'80s, concentrations dropped radically. You can see the same sort of thing with lead. After it was taken out of gasoline, there was a pretty good drop.

MM: Do you notice, as a scientist, environmental recovery from these things? I mean, have you seen what you would consider progress in places where there's been environmental devastation?

BY: Certainly some places, yes. A lot of these sites, unfortunately, I haven't gotten a chance to go back to after they got cleaned up. I saw them when they were in bad shape. But I'm sure that Commencement Bay is in better shape than it was. I'm sure Eagle Harbor is in better shape than it was, particularly the places that were really devastated, they have to be much cleaner now than they were.

MM: I don't entirely comprehend the technology behind how these measurements are taken and how that's changed. I imagine our awareness of PBTs isn't just because they suddenly appeared in the environment, but because we have ability to measure them. Do you believe that's true?

BY: To some extent, yes, but certain chemicals weren't measured until recently, like the flame retardant PBDEs that Ecology is focusing on now. I'm not sure that they were made 10 years ago, and the first time we started detecting them in fish was about seven years ago. They weren't on the EPA priority pollutant list. So, in that case, it's something that's brand new to the environment, and techniques had to be developed to detect them and measure them.

MM: And what are those techniques?

BY: Measuring PBTs in the environment requires some pretty sophisticated testing. There are several steps, all of which need to be in place for the analyses to be useful. You have to collect samples in the appropriate way, choose the right analytes—meaning the pollutants—efficiently extract these from the sample, then correctly ID and quantify the pollutants. There have been advances in all these techniques. During my time at Ecology, I'd say the most important improvements in sampling included using flow-through centrifuges to collect fine sediments from streams and rivers. This allowed us to detect compounds in streams and rivers that couldn't be detected in whole water samples. Another sampling improvement was the use of special samplers to collect and slice

undisturbed sediment cores so we could get the history of contamination. There were similar advances in our ability to collect water samples without contaminating them. Also, we started using what are called "lipid bags" that could be suspended in water bodies for a long time to collect fat-soluble contaminants. At the lab, techniques to extract pollutants and interferences from samples improved, as did chromatographic techniques for separating organic contaminants. Then, new detectors came on-line that got better at detecting and measuring these contaminants more accurately and at lower concentrations.

MM: And tell me, along with these technologies, what was the other push that led the agency not only to discovery, but to commitment?

BY: As I mentioned earlier, the PBT initiative was linked with the release of the Washington State Dioxin Source Assessment, in '98, I believe. Those two things happened simultaneously. What was different after Tom Fitzsimmons took hold of the issue was that there was some clear leadership. It was clear that this was something he was staking his administration's reputation on. So we had to make some progress. Not too long after that, there was actually some dedicated funding at a more reasonable level than there had been in the past. There had been little chunks of change up until then, but nothing substantial. And then, of course, Mike Gallagher was hired full time as somebody who would be accountable, at the working level, to produce something. So, all of those things tended to focus attention and focus effort.

MM: Was there any public effort, or public sentiment regarding this issue, insofar as getting the governor's attention?

BY: This was another thing that I think possibly is part of what ended up focusing folks, and getting, in this case, the Governor's Office involving an issue person—specifically Carol Jolly—who was Governor Locke's environmental person. There was a town in Central Washington, Quincy, where an issue blew up about the possibility that waste was getting into fertilizer and so-called "soil amendments," and that those contaminants were ending up in soils and crops. That's what this investigative reporter with *The Seattle Times*, Duff Wilson, dealt with. He actually wrote a book about it, *Fateful Harvest*. The mayor of the town got very much involved in the issue, and she ended up aggravating a lot of her neighbors. Ultimately, she lost her position as mayor. As a result of this concern, we did a study on contaminants in soils statewide, measuring the dioxin concentrations in agricultural soils, forest soils, urban soils and whatnot, throughout the state. There were some other studies that were done looking at metal levels in agricultural soils versus soils that hadn't been previously farmed. The link here was that some of the materials that were considered to be wastes, and even hazardous wastes, were ending up in fertilizers that were applied to agricultural land. At a gut level people didn't think that was particularly a good idea, although there weren't, in the end, health problems that could be linked to this questionable practice. But that incident really helped to put the spotlight on this question of pushing contaminants around from one media to another. So,

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if they are regulated here, they'd go some place where they're not regulated, and in this particular case, to fertilizers and soil amendments that weren't being regulated. And I'm not sure that's a problem that's been completely solved, even today.

MM: How did attention to these issues affect you professionally in what you were able to do?

BY: I ended up working with Mike Gallagher and had the sense that what I was then working on would actually result in some action. My sense with a lot of the prior tasks was that they weren't necessarily going anywhere. So, it made it more rewarding to do the work. Work related to the PBT Initiative included advising Mike on monitoring, recommending monitoring approaches, and researching information on the sources of pollutants. I wrote the portion of the Mercury Action Plan that dealt with natural sources of mercury in Washington state, and I provided technical advice on issues that had to do with the behavior of PBTs in the environment. We also started doing some testing using sediment cores.

MM: Having done this work, what are your concerns for the future of the environment—I guess I could say not just the state of Washington, but everywhere—what are your concerns?

BY: They're pretty large. If I look at things honestly, I'm not horribly optimistic, especially when I look at the link between population increase, increased consumption and increased waste generation. There's also this tendency for humans when they get stressed, when they don't have—or perceive that they don't have—enough food or are concerned for their livelihood or their offspring, it seems like things can get selfish pretty quickly. The condition of the environment isn't exactly at the top of their agenda under those circumstances. I'm gratified that people like Rachel Carson recognized the problem with pesticides, and that folks worked together through private and government channels to control and mostly rectify it. I'm not sure that newer issues like species extinction, global warming, and genetic engineering are going to get as effective attention.

MM: After working so long to see efforts to reduce these toxins strengthened, how do you feel about the PBT strategy?

BY: It's a start; that's something. There are lots of further actions that Ecology could take that could address some of the problems identified early in the PBT effort. Funding is inadequate. We're dealing with one pollutant at a time. Monitoring, which has always been my particular interest, is weak. It's been difficult, sometimes impossible, to tell whether we're actually making measurable progress. Laws addressing the various media—water, air, and soil—still don't jibe. I'm not sure how much inter-program communication and cooperation have improved since I've retired. My concern is that the continuing viability of the PBT Initiative is tentative and threatened from legislative session to legislative session. From what I've seen, progress is incremental, but it's better than it was prior to 1998.

Body Contaminants: Toxic Substances and Human Health Effects

An interview with Dave Bradley
June 18, 2004


Bradley

Position held at time of interview:

Toxicologist, Toxics Cleanup Program, Washington State Department of Ecology, since December 1984

Education:

- Master of Public Health in Environmental Toxicology, University of Michigan School of Public Health, 1977
- Bachelor of Science and Engineering in Environmental Chemistry, University of Michigan, School of Engineering, 1975

Maria McLeod: Dave, I understand that you're a toxicologist for the Department of Ecology, and that, as part of your work, you've served on the PBT committee. Can you tell me what kind of work you've done for them?

Dave Bradley: Most of my work with the PBT group was in reviewing information on the toxicity, asking questions about its environmental behavior—how persistent, and how do these chemicals bioaccumulate—in order to select the chemicals that we were going to focus on, create a list, then apply a ranking scheme based on the relative likelihood that a chemical is a problem in Washington. There were 23 chemicals on the initial list that was distributed during the summer of 2002.

MM: Do you remember the first time you heard that term, "persistent bioaccumulative toxin," and what your knowledge of PBTs was at that time?

DB: I probably heard that particular term about 1998. But I'd heard of the concept earlier. When I was first out of school, in the late 1970s, early 1980s, one of my employers was the Environmental Protection Agency. I was involved in the Pesticide Program, evaluating various pesticides on whether they should be re-registered for use in the United States, or whether those registrations should be canceled or suspended. As part of that, consideration of the persistence and the potential for bioaccumulation of various pesticides, for example, heptachlor, were central to those evaluations. So, the concepts are not new. The term and the emphasis on these chemicals are a kind of '90s phenomenon.

MM: I recently read an article that broke down PBTs as dioxins, furans, pesticides, and heavy metals. Is that an accurate breakdown?

DB: That's certainly one way of lumping them.

MM: How would you go about explaining them and describing them?

DB: I guess you start with the broad category of all substances, then break that down. And when I say substances, I'm talking about both man-made substances and natural, those that

have harmful effects in humans, plants, animals, and then PBTs, which are subsets of that group.

MM: So, there are all these substances; some are harmful, some are not. Then we have toxic substances, but they're not all necessarily bioaccumulative. So, very elementary here, what makes a PBT different from other toxic substances?

DB: I think the program's recent emphasis on persistent bioaccumulative toxins is focused on two things. You start with the premise they're toxic, but then there are other substances that are also toxic. So, you try to distinguish the two characteristics, one of which is that these substances tend to persist once they're released into the environment or get into people's bodies, plants, fish, or animals' bodies. Either in the environment or in the body, they hang around a long time. Secondly, once they're released—they may be released at very low concentrations, say into the water or the air—once they're released, they're taken up, starting with the lower organisms, such as plankton. Concentrations tend to increase as they go higher in the food chain. So, in our traditional approach to looking at this, we were observing, OK, if what's coming out of the pipe is fairly low, we don't need to worry about it. With PBTs, we need to be conscious that those low concentrations at the pipe may, through the food chain, grow in size to become something we're concerned about.

MM: Could you describe how certain PBTs enter our system, our bodies, starting out in the water or in the air, and talk a bit about the human health affects?

DB: In terms of pesticides, like DDT, they're applied to crops. There is some runoff. That runoff may enter the nearby water body. These things tend to bond with the sediments. So, they settle to the bottom. Then there are organisms, particularly plankton, that will start to take this stuff up. There's interchange between the water and the sediment and some plankton, and then a larger organism will eat the plankton. Eventually, you've got small fish that are eating them, then larger fish or animals, and humans are eating those fish all along the way, accumulating these types of contaminants. There are varying degrees of bioconcentration or biomagnification that occur if you go up the food chain.

MM: Wasn't it the pesticide DDT, which is now banned, that was found to be what's called an endocrine disrupter?

DB: Right. In the mid-'60s, Rachel Carson's book, *Silent Spring*, depicted one of the signals of this problem, which was, in certain areas, you didn't hear birds singing. There are studies that trace that back to eggshell thinning and lower reproductive success in birds, which was then traced back to exposure to chlorinated chemicals such as DDT. It basically acted on the reproductive process, either by blocking the way normal hormones work or maybe mimicking them to then create lower reproductive success.

MM: Did Rachel Carson refer to the concept of persistent bioaccumulative toxins?

DB: No, I don't think that was a term used at that time. She was focused on the end results, and linking that back to the use of pesticides and other industrial chemicals. The label of being persistent or bioaccumulative was implied, if nothing else, because, going from the release to the effects, those mechanisms were involved, but it was not a term used then, in the early '60s. In the 1970s, there were significant court cases, regulatory efforts by EPA, in terms of canceling the uses of the pesticides DDT and Aldrin and others. Central to

that were their toxicity and, indirectly, their persistence and bioaccumulation. In the '80s, we saw the Superfund programs increasing. That created a lot of interest and new resources to look more closely at the toxicology and behavior of these types of chemicals, as well as other substances in the environment. Then, in the '90s, agencies began looking across the individual programs and asking whether these types of chemicals have some unique properties that caused them to fall into the cracks in terms of how we were implementing the air, water, solid, and hazardous waste programs up until that time.

MM: Are all PBTs endocrine disrupters?

DB: No, not necessarily. One of the big uncertainties is that we don't know everything about all these chemicals, much less how the body functions normally, so it would be a large leap and an incorrect leap to say PBTs equal endocrine disrupters.

MM: Can we say that some are, or would we say there's only an association?

DB: Hormones are key components in the human body and its development. Many normal functions of the human body—reproduction or the level of sugar in the bloodstream—are controlled by hormones. That whole system involving the generation of hormones—their release into the bloodstream, their control over the various processes in the body—is the endocrine system. There is a theory that various chemicals—and it may be man-made chemicals or natural chemicals—mimic the various hormones and there's particular concern about the reproductive process. There's a lot of hormonal action that influences the development of the fetus and infants. The theory is that they may either substitute or operate at different times in the reproductive process to mess up the development process.

MM: So, what chemicals are associated with this?

DB: DDT, as I mentioned before, PCBs, and a lot of the ones that show up on Ecology's initial PBT list are thought to have some ability to mimic the hormones of the body. However, there's a National Academy of Sciences Committee that debated this issue, basically from 1991 to 2000, reaching a conclusion that, for wildlife, there was some information, but it was still not a completely verified theory. As for humans, they said there was no evidence firmly supporting the theory; however, there's a lot of logic and evidence to suggest that this indeed has a potential for occurring, but later on that was questioned. That's one of the challenges, I think, for not only PBTs but for scientists, regulatory agencies in general: How much information is enough to warrant some sort of actions? How do you balance the potential for false positives—the situation in which we will predict that a chemical will cause problems, but, with more information, later find that's not the case—with the potential for false negatives when we initially predict a chemical isn't a problem, but with more information, later find that it is? So I don't know where this kind of question has led, but I would say PBTs do not necessarily equal endocrine disrupters. Although individual substances labeled as PBTs may disrupt the endocrine function—whether it be in humans, animals, or plants—there still is a fair amount of scientific controversy around how widespread that is.

MM: We talked a little bit about pesticides, a group of pesticides, but what are dioxins and furans?

DB: Dioxins and furans are contaminants in various industrial chemicals like pentachlorophenol and pesticides. They are also produced when waste materials containing chlorine are burned. These substances are very ubiquitous in the environment. We get a lot of these telephone poles, that sort of thing, treated with various wood preservatives that are contaminants. Dioxins and furans are a group of contaminants that display these three properties—toxicity, persistence, and bioaccumulative potential.

MM: I think there are even Superfund sites where creosote pilings have been identified as the source of the contaminants right here in Washington, right?

DB: Yes, Cascade Pole for one. Up in Eagle Harbor on Bainbridge Island there was a wood treating facility for a number of years, so, you've got polycyclic hydrocarbons, (PAHs). You've got various chlorinated preservatives, but then you've got dioxins that are showing up in the sediments and soils.

MM: So, if they're showing up in the sediments and soils, what are the health effects of dioxins? How are they different from pesticides?

Actually, both dioxins and chlorinated pesticides have the potential to cause a wide range of health effects. Much of the regulatory efforts have focused on cancer, a potential for increased risk of cancer. However, we also see the potential for disrupted endocrine systems influencing the immune system and our ability to fight off infections.

DB: Actually, both dioxins and chlorinated pesticides have the potential to cause a wide range of health effects. Much of the regulatory efforts have focused on cancer, a potential for increased risk of cancer. However, we also see the potential for disrupted endocrine systems influencing the immune system and our ability to fight off infections. A lot of these contaminants tend to be some of the better studied. The more studies you have, the more potential health effects that you find, and, again, from a regulatory standpoint, at least until recently, a lot of the driver has been the potential for increased risk of cancer.

MM: So, tell me how cancer occurs from PBTs?

DB: Chemicals in general and PBTs are not different. I think the main way a toxic chemical causes cancer is by reacting with a cell's DNA, which then causes a mutation, which then translates into uncontrollable growth, leading to the development of a tumor. The organ may be a bladder tumor or maybe a liver tumor, or maybe a lung tumor. In particular, the tumor overwhelms first the organ and then the body. There are other mechanisms where cancer is caused, but that's the primary theory, and therefore is a lot of what regulatory agencies have based their decisions upon.

MM: We still haven't talked about the heavy metals that have been identified as PBTs: mercury, lead, cadmium.

DB: Those are the three that were on the list we created a couple of years ago, in 2002. Each of these has impacts on the central nervous system. Actually a study of lead is about to come out, which is leading to questions on what we had previously thought was an

acceptable level of exposure. The information raises questions as to whether standards should be lower because of the impacts on little kids in terms of growing, disabilities, or in terms of IQ scores. It's the same thing with mercury and, to a certain degree, cadmium. I'm less familiar with cadmium in terms of the types of health effects, but with these metals, a lot of the emphasis has been on nervous system effects.

MM: And so, lead entered the system via lead paint, and we used to run our cars on leaded gasoline. What other ways did lead enter the environment?

DB: Nationally, those are the two main sources. It was also used in food cans, in lead solders, and then, in this state, there were some industrial facilities, such as the smelters, which emitted large amounts of lead over a period of time. Now we've got lead in the soils that are the results of those operations.

MM: And then cadmium?

DB: Cadmium was released by smelters. Again, I'm not familiar with all of the sources of cadmium. Actually, cadmium has been used as a pesticide. Lead arsenate was used extensively from the early 1900s, and from 1907 to 1947, on orchards in Washington to control the gypsy moth. So, there is an extensive amount of acreage where there's elevated levels of lead and arsenic in the soil as a result of those activities. DDT was brought in to replace that.

MM: Regarding neurological health effects, there seems to be ALS, Lou Gehrig's Disease, there's MS, multiple sclerosis, there's Parkinson's, there's Alzheimer's, there's all these neurological disorders, and they seem to be on the rise. I don't know if that's true, but do you think there's any association with these illnesses and PBTs, or is that just too big a leap to make?

DB: I think there's a plausible biological basis for making that connection, but there seems to be some association, as opposed to a definite cause and effect, that these chemicals are causing these problems. In a lot of cases, we haven't received enough information to make that sort of conclusion, which then comes back to my earlier question, how much proof is enough to justify taking some sort of action?

MM: Can you tell me, in layman's terms, how these PBTs, in this case, these metals, enter the human body and impact our neurology?

DB: Say, when a mother is exposed to lead and then the child becomes exposed, either before birth, or maybe after, through breast milk, during the time when the brain and the rest of the nervous system are developing, lead can act upon the developing brain in a number of ways. There's still not complete proof that it acts in only the young, but it mimics calcium, which is important in terms of the child's development of the nervous system. It may disrupt that calcium transport. So it may, then, influence the development of certain parts of the brain, which then influences the ability to learn at later ages. So it acts by disrupting the normal development and function of the nervous system.

MM: Resulting in forms of retardation?

DB: In the extreme. Right now there are definitely high levels of lead exposure that we may have seen in kids who eat lead paint chips and that sort of thing. That definitely can

result in the swelling of the brain, and significant, very observable effects in children's brain. What we're really finding now is more subtle effects. We probably can't pick them out in the individual child, but when we look at groups of children who are exposed to lead, or have certain levels in the bloodstream, you see a lower average score in IQ tests as opposed to kids who haven't been affected by lead. Later in life that may be translated into higher dropout rates, lower learning potential, more social disruption, crime. There have been studies that have shown connections between lead exposure and lower IQ and then various social outcomes.

MM: For these chemicals, particularly the synthetic chemicals and pesticides that are being produced, do corporations and industries have to do some kind of testing before they use a new chemical to understand its toxicity, or can they put them out on the market with toxicities or health effects unknown?

DB: There is a federal law, the Toxics Substances Control Act, that requires companies to do testing prior to using a new chemical or manufacturing a new chemical. That law was passed by Congress in 1976. It took EPA, as with any program, a period of time to get that under way, but that's been operating for about 20 years. I don't know how effective it is, but there is now greater scrutiny of new chemicals. Actually, for a lot of companies it's not worth it to them to create a new product that is, down the road, going have side effects that could have been anticipated. So there are some programs in place to require testing prior to introducing a new chemical and/or in some cases, using an existing chemical in a new way. But there are a lot of existing chemicals out there that, in some cases, have never been tested and are not covered by those laws.

MM: How do the laws constrain or support what it is you're doing?

DB: Well, a lot of our environmental laws are pretty generally written, so that you can interpret and protect human health and the environment. In other cases, the laws define steps that people need to take to reduce exposure to the maximum extent feasible, so feasibility and costs come into play. In some cases there is ambiguity. Over the last 10 years, the trend at the national and federal level has been for the Legislature or Congress to write laws that are more specific in terms of what the agency is required or authorized to do, adding requirements for more thorough consideration of costs and benefits. That push has translated into, not necessarily changes in the statutory requirement, but more analysis, the cost benefit analysis and overall environmental analysis, which, in a broad sense, is a good thing, but it adds time, expense, and in some cases, may translate into nothing being done.

MM: Is that the frustrating component to what you do, the potential for inaction?

DB: That can be a frustration; although, overall, my approach is that I think we need to look at these things objectively, and, to the extent we can, have the facts fully factored into the decisions. It's not data-free decision, but there's a point at which, if you continue analyzing, you'll never getting around to taking action.

MM: What is the waste minimization prioritization tool, and how has that been used to classify chemicals as PBTs?

DB: The waste minimization prioritization tool (WMPT) is really a ranking system that EPA's hazardous waste program developed in the mid-'90s to help them select a group of

chemicals or wastes on which to focus their pollution prevention and waste minimization efforts. It was an effort to prevent these chemicals from being generated as opposed to managing them in landfills, or in other ways. A lot of EPA's work focused on substances that we know as PBTs. So, they had a fairly detailed system, which they did an awful lot of work on in terms of compiling information on the toxicity, the persistence, and the bioaccumulation. In the late '90s, when we here at Ecology were developing our approach, creating our strategy, we basically pulled their model off the shelf and used all of the information on the individual chemicals that they prepared, along with information that we had in our databases on what's out there in the water, what's out there in the sediment.

MM: So, the WMPT is both a system for ranking and categorizing?

DB: It's a combination of first identifying what the universe of chemical substances was that we wanted to classify as PBTs—I believe we identified 23—and, then, once we had that, the question was, which ones do we think are most important for this state? Then we went about defining characteristics, the P, the B, and the T, taking into account what is in Washington's environment, what is in the sediment, what is in the fish here, what do we know, what is being released? The more it was in the environment, the higher level the ranking would be. It's a federal tool we plagiarized and modified to meet our purposes here in Washington to create and rank the initial list.

MM: Are you satisfied with Ecology's list of chemicals, or would you like to see more?

DB: I'm less concerned about how many are on the list, to begin with. It's really about what we're going to do with those substances that are on the list. I would rather see a list of nine where we're actually doing something to reduce them and prevent their release, as opposed to having a list of 100 that we can't get our arms around. So, I'm fairly satisfied.

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MM: What's been the greatest challenge to studying and analyzing the chemical make-up and effects of PBTs?

DB: One of the challenges is in analyzing the effects of several chemicals, and then as multiple chemicals. How does this cocktail mix of things influence health effects? Secondly, during the last 20 years, we have focused on cancer as an important concern, and there are fairly standardized approaches for evaluating that: the testing of animals, doing epidemiological studies. We've also looked at some of these other effects, particularly neurological and endocrine effects. Timing, and the ability to replicate the results of these effects, is very important. A level of exposure at one point in the development process may not have much of an effect, but two days later, when the fetus is going through a different process in development, it may be very sensitive to the effects of these chemicals. So, the interpretation of these tests poses significant challenges. In some cases there's more uncertainty than certainty.

MM: It sounds like the multitude of variables makes it really difficult for you to make determinations, is that true?

DB: From a purely scientific standpoint, yes. Scientists design studies and generally impose questions, and there's sort of a gray area where, well, there's little difference between the study group and the control group. But there has to be a certain difference before it's considered statistically significant. That does minimize the chances that we're going to take action when there really isn't a problem, but it also increases the chance that we might miss something. We might see that there's no statistically significant difference when, really, because of the test's variability, we might have missed it. So, if the consequence of inaction is the health threats to a large number of people over a large period of time, then how do you balance those? It's really beyond science at that point. To me, the challenge that this agency and society has is, how much information is enough to take preventative steps to reduce exposure?

MM: How do you think your work and the work of other toxicologists have contributed to reducing the levels of PBTs, either now or in the future?

DB: My work, probably not much. I was involved with developing the cleanup standards for the Model Toxics Control Act in the early 1990s, which is the state Superfund law. The creation of those standards has streamlined and made more efficient the process for cleaning up waste sites in the state. I think that's contributed to getting some of these substances out of the environment. But when you go out across the country, the Great Lakes area is a really good example where a group of scientists have, since the mid-'70s, been doing a lot of work to show that these chemicals are being released, and that they are getting into plants and animals and people. Their examination of potentially adverse health effects is the building block for taking action. Also, toxicologists, or scientists in general, have been important in terms of regulatory policies, translating that scientific information, and using it within the frameworks of our laws to get beyond the paralysis by analysis stage, to actually get something done in terms of reduction.

MM: It seems that, lately, there's more national and international attention to PBTs, more headlines. I wonder, how does such attention impact the work that you are able to do, and the work of the PBT committee? And, along those lines, are there negative as well as positive sides to certain environmental issues becoming popular?

DB: There are. Overall, I think they're positive. It creates expectations for action, so it becomes easier to get things done. Actually, when I first came out here in 1985, one of the projects that I had was the Midway Landfill, which had just become a Superfund site. There was a lot of anxiety, because some of the problems generated a fair amount of chaos, but that chaos created opportunities because people wanted something done. So I think attention to an environmental issue can make it easier, and it also creates opportunities for innovation. The fact that it makes the news means, perhaps, that something wasn't working. Also, any time this agency or a government agency is successful, particularly in working with others, I think that enhances our credibility and makes us more effective in dealing with problems in general, whether it's the problem of the month or what have you. The down side? For every action, there's a reaction. If you create an issue, you create supporters for that issue, but you also create opponents to that issue. The more newsworthy it becomes, the more vocal and active the opposition. In some cases, the desire

for quick fixes gets in the way of what's the right thing to do, what's the sustainable and long-term solution. Sometimes the issue of the month can become a battleship that can drain resources from other programs or issues that are equal and, in some cases, more important. That may reduce the overall effectiveness of the agency. There are no free lunches in terms of working on popular issues.

MM: We've talked about how PBTs enter the food chain, but can you talk about how they leave?

DB: Well, the metals don't leave the environment, but all of these organic chemicals, to some extent, break down. The chlorinated pesticides have extremely long half lives, but they do eventually break down into other chemicals. Not everything starts up the food chain, there's some binding or storage in sediments, sticking to organic materials. It's there, but it's not necessarily available to go up into the food chain. But you take sediments, for example, and you've got dredging projects. You pull them up, and a certain amount will get into the water column, then it can go up the food chain. The importance of prevention, primary prevention, is that you prevent it from getting into the body. It's very difficult to get these things out of the body once they get in, whether it's the metals that are in bones, which then are kind of time-released into the nervous system, or if it's organic chemicals that tend to get into fat and then are released during pregnancy or weight loss programs. I mean losing fat, but as you do that, you release some of the chemicals that are stored in the fat, so I mean, some of that goes out of the body, and some of it is just redistributed within the body, so it's not a completely win/win situation.

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MM: As someone who knows better then the average person the possible effects or complexities of these chemicals, do you find it frightening that there's chemicals out there that have never been tested?

DB: I guess my general response is that life is full of risks: car accidents, plane accidents. This is just one of several. Certainly we can be fearful and paralyzed by that fear. Every now and then, I do think back to when I was in grad school, working in a toxicology lab, and, oh yeah, we're using all that benzene and, oh, I wonder what I was exposed to. By and large, I try to take steps to minimize exposure to toxic chemicals, but realize that to take it to the extreme, you would be losing other benefits in life. I'm a vegetarian so I don't eat fish that might be accumulating this stuff. I try to reduce use of fossil fuel by running or cycling to work, but if we all live in today's society, there are some risks that probably are unavoidable, and we can only try to make progress to reduce those, but that's going to take time.

MM: What drew you to working on PBTs?

DB: Well, the issue is kind of a fascinating blend of science, policy, and real-world considerations, especially in the questions that it raises. There was also an opportunity to integrate a lot of experiences and knowledge that I had accumulated over time. Also, it was

an opportunity to integrate across programs. Over the last 20 years, there have been various efforts to do that at the state, federal, and international levels, so this was just another mechanism, another way to bring together efforts of different programs, to do things a little more efficiently. Third, I think examining PBTs was a way of looking at how we do things over the long-term in a more sustainable way. So all of that came together to pique my interest.

MM: So, you have interests in policy? Do you feel that you're doing work now in terms of changing policy or affecting policy?

DB: Yes, I would characterize myself as a policy wonk. Actually, much of what I've done here and in Washington, D.C., I would not characterize as pure science or pure toxicology. My interest is really more in the use of that toxicological information in terms of informing and supporting public policy, and, in this case, the terms of reducing exposure to harmful things.

MM: I have this idealized vision of what the life of a scientist is like. I think of science as sort of a "eureka" profession. What, for you, as a scientist working in this field has been a time when you felt, wow, we're really understanding this now?

DB: I may not be the right person to ask because I don't see it as a "eureka" kind of moment, or one where a light bulb goes on. I see it more as moving from plateau to plateau. You get to a certain plateau and you think, oh, great, I think I know this stuff, but then you learn a little bit more and you realize how much you don't know. From there, you progress to another plateau. Then at those plateaus, there are certain responses to that information and to that level of knowledge. You can look back over the last 20 to 30 years and see where some of those plateaus have been reached, where there have been efforts to reduce, control, and prevent certain types of contaminants, but I don't foresee anytime in the near future where we're going to know a lot in a purely scientific manner because of all the complexities associated with how these chemicals affect people or animals or plants. There are issues, such as the range of sensitivity in different people, or the time of exposure—if it's early in life, or if it's later in life. What happens if you're exposed to DDT and mercury at the same time, or to Aldrin, or multiple chemicals? In a way, the more we learn, the more questions we have. The challenge really becomes, how do we avoid the paralysis by analysis in this type of situation? How do we synthesize the information in a way that results in a decision to do something or to not do something?

Collective Inheritance

An interview with Dawne Gardiska-Shepard
June 15, 2004


Gardiska-Shepard

Position held at time of interview:

Senior Environmental Planner, Toxics Cleanup Program, Washington State Department of Ecology, since 2004

(Employed by Ecology since 1991)

Education:

- Bachelor of Science in Industrial Design, Western Washington University, 1984

Maria McLeod: Dawne, I have here, in your professional biography, that you've worked for the agency for 14 years in the Toxics Cleanup Program, that you began by doing public involvement, and are now the program's environmental planner. Can you tell me how your work came to involve the PBT Committee?

Dawne Gardiska-Shepard: I had heard from co-workers sometime in 1998 that the agency was putting together a committee to work on that strategy, and, being in the Toxics Cleanup Program, I could see links between the chemicals they were talking about and what we did in our program. Actually, I had become interested in the whole PBT concept in the mid-'90s when I heard Dr. Lou Guillette talk about alligators in Florida. There is a lake, Lake Apopka, in Florida that was considered clean, it appeared clean, but these alligators were having difficulty reproducing, so Dr. Guillette went in to find out why. What he found was that there were trace amounts of persistent bioaccumulative toxins in the lake that weren't considered at levels high enough to harm anybody or anything, and yet he found that these chemicals, because of their persistency and accumulation, were affecting the alligators. So, that was my first introduction to PBTs. After attending a couple of Dr. Guillette's lectures, I started seeing possible links between that and my own inability to carry a child to term. So, that was a very personal link for me, because I didn't have any idea at all. I had never been able to understand it. At the same time this was happening, the agency was also getting this strategy coming together, and I talked to some folks and found out who was on the committee, and I knew that they didn't have anyone on the committee who had more public perspective than I had. It seemed very important to me that they include someone who could help translate that information because what they were working on was extremely important, and I wanted to make sure that the message was being heard.

MM: OK, so I want to go back to that story about the alligators. Correct me if I'm wrong, but you said they were having difficulty reproducing, these alligators? Are you talking about endocrine disruption?

DG: Yes. Endocrine disruption is related to a person's hormonal system, and hormones are what help us have the ability to procreate. So, for the alligators, things were happening like the shells of their eggs were very thin, so they weren't being protected. Sometimes there were deformities in their offspring, so they had a low survival rate. So, when I think about endocrine disrupters, I link it back to our hormonal activity and our ability to reproduce.

MM: Were you ever able to carry a child to term?

DG: No.

MM: And do you still feel that PBTs had something to do with it?

DG: I don't know. I worked with several experts for many years. What I believe—and it may not be true, it could be another one of those false information things—but I remember picking strawberries as a kid. I remember blowing the white powder, some form of pesticide, off the strawberry and putting it in my mouth. I went to several conferences where I learned that part of what the endocrine disrupters do is to disrupt the messaging in a person's body. When you conceive a child, part of that messaging is related to the mother's support of that child for the first three months. At three months, the body sends a message to the baby that it's time for the baby to take over.

MM: How long ago was this in your life?

DG: Twelve years.

MM: Twelve years, right around the same time you began working for Ecology? So it must have been really strange to have this incredible intellectual awareness about what was happening in the midst of having this very personal experience. Did it help to have the information or not?

DG: It helped me. I know so many women in my age group who cannot carry a baby or cannot get pregnant, and the hardest thing for them is why. They're doing everything right. They're eating right, they're resting, and the doctors still don't know. This should work. You both have all the right parts, and everything's functioning normally; you're conceiving. And I think that people want to be able to have an idea or name for what it is so they can put it to rest. I think that's what it was for me, the possibility that there was a connection between things that I did and my inability. It may be inaccurate, but when I was able to say, this may be what happened, it was easier for me to put it to rest.

MM: Can you tell me a little bit more about the link between your job and the Toxics Cleanup Program in the area of persistent bioaccumulative toxins, how those two areas are related?

DG: In the Toxics Cleanup Program I was hired to do public involvement, so I worked with communities that are located near sites that have contamination in them. Primarily we were focused on getting the information out to the communities that were interested and might be affected by contamination. Part of our law is that people have a right to be involved in any decision that affects them. Sometimes, when we're doing cleanup, the communities bring information to us that helps us change our cleanup plan. The PBT strategy is housed in the Environmental Assessment Program, which is a very different

program, and since I had been in the world of cleanup sites for several years by then, I was able to see that often what had been discharged into a water body was permitted by law, but, over time, had actually created a site of contamination that we had to go back and clean up. So, PBTs, because they are persistent, provide a more critical problem, because this contamination isn't going to break down—it stays there forever and ever in its own shape. So the link is in wanting to find a way to reduce and minimize those releases before they get to the place where we have to clean them up.

MM: You mentioned that you thought it was important to have someone with experience working with the public on the committee. Can you tell me how you distributed information to the public?

DG: We held public meetings for the PBT committee, and we generated materials for those. We wanted to provide people with information that was useful and meaningful, so that they could make informed decisions. We wanted to provide all the health information that we knew existed at the time, so we worked with Department of Health on the information sheets. We also used the meeting format as a way of talking to people about developing the draft strategy so that we could point out where they're able to influence the process. We gave people a list of resources, so those interested could have easy access to other links and other perspectives about these kinds of chemicals.

MM: Tell me about running those public meetings. What was your goal and what did you learn?

DG: My interest in this committee was to really find out what the public was thinking. When we wrote the strategy, we were talking to people all along the way. So, the strategy is based on what our scientists here said, plus public perspective. We put it all together; then we took it out to the public to receive and record their commentary, to make sure that, as a state agency, we're representing what they want. There are several ways of recording comments at a public meeting, and I wanted to write people's comments on flip chart paper so people could see that I'd heard their comment and that it would be recorded. When we did the first set of meetings, actually the director of Ecology, Tom Fitzsimmons at the time, went out to all five public meetings and facilitated them as a way to tell the public how important this issue was to Ecology.

So, we traveled around the state in this little herd and did these public meetings, which were very exhausting, more difficult than I thought they would be, just because there was such huge emotion around this issue. We heard lots of testimony from individuals who had their health affected by these kinds of chemicals, who had children who were affected by these kinds of chemicals. We heard teachers in school districts who had lost their jobs because they had had a reaction to pesticides used at the school and they were no longer able to work there. We heard people who had spent years and years trying to find the answers to their illnesses, people who believed that their health was being impacted by all the multitude of chemicals in our environment.

There was a large group of people concerned about mercury dental amalgam; so they came with information about that. At one meeting in Seattle, Washington Public Research Information Group (WashPIRG) presented us with 2,000 postcards that they had people sign, asking us to strengthen the strategy. When we did the public meetings there was so much interest in it that we had about an hour to an hour and a half open house before each

public meeting where people with various perspectives and interests set up tables and had information available about their organizations. We didn't want it to be just an Ecology road show. We wanted to be able to give that community as much information as they were interested in receiving.

MM: Who are the "we?" Who were the other people from Ecology who were involved?

DG: The first round of meetings included the director of Ecology, Tom Fitzsimmons, Mike Gallagher, who is the PBT coordinator, and Bill Backous, who's the program manager of the Environmental Assessment Program. We had Harriet Ammann from the Department of Health, Dave Bradley, our toxicologist, and Dolores Mitchell, who works in the Solid Waste Program. She was also on a committee to represent the public perspective. John Ridgeway of Hazardous Waste/Toxics Reduction was at a couple of them. So we would be the ones who'd be doing the recording of people's comments. I know I'm leaving some people out. There were different people from the committee at different meetings, but there was a core group of us who went to all of them.

MM: When and where did you hold these meetings and approximately how many people showed up?

DG: I think it was in the spring of 1999. We went to Bellingham, Seattle, Spokane, Vancouver, and Yakima. We had a really large turnout at each of the meetings. Bellingham was probably one of our smaller meetings. I'm remembering there were close to 100 people there. In Spokane we had 150, maybe a couple of hundred. People were, again, very passionate, very interested in the issue. In Seattle we had about 300 people there.

MM: Before you started these meetings, these public meetings, did you have a notion of how things were going to be or what it was going to be about, and, if so, was that notion changed or challenged by the meetings themselves? What, if anything, surprised you?

DG: What surprised me was the huge support we received from the public. One time, Dolores Mitchell and I went to an interfaith meeting that was being held in the same building, before our public meeting. People there didn't know that we were with the State, and this group was prepping people for the meeting. They were saying, you know, Ecology is so far out on a limb on this, we really have to support them. At the same time, they also felt it was our responsibility to push to get more. So after that meeting, we then stepped across the hall and started the public meeting. Both Dolores and I were up at the front of the room recording, so it then became very apparent that we were with Ecology and had also been at this small meeting, so people came up to us after the meeting, telling us how much they appreciated our personal interest in trying to get this to work. When we were in Vancouver, it was a very emotionally charged meeting as well. And again, I was down in front recording, and afterward, I had several people from the audience come up and give me a big hug, saying, thank you for doing this work, and that surprised me.

MM: How do you think that public interest and their knowledge came about?

DG: I think that for many of them, their level of knowledge came about because they were personally affected, so they started looking into it. When we have knowledge, we really can make the choice to continue to probe. I was surprised that WashPIRG made it their campaign for the year to help get the strategy off the ground. The Washington Toxics

Coalition pushed very hard. The placed a full page letter ad in the paper appealing to the governor, and not only that, but they coordinated with other similar groups in all the other 50 states, including an all-day rally on the same day to try to get the other states in the U.S. to have a PBT strategy. The level of work that people were doing to try to make this a reality really surprised me.

MM: Talk to me about what it means to be "out on a limb" and to "make this work." Why wouldn't it work, and it what ways was Ecology perceived to be out on a limb?

DG: I believe people were saying that we were out on a limb because we were the first state in the U.S. to put together a strategy to address this issue, so there hadn't been any ground broken before us. They wanted to make sure that Ecology had the support in the Legislature to continue working on this issue. Environmental groups had been lobbying in the Legislature and they were aware that it was a very controversial issue and that the funding for this agency for PBTs was very political and in question.

MM: What have been the hopeful signs regarding the progress you and the committee have made?

DG: Actually, something happened in the past year, which I think is one of those things that would really help start to move this forward even more quickly than I thought it would. That is the governor signed an Executive Order, saying that state agencies needed to find a way to buy products that don't contain PBTs. This is a huge order, and I don't think that anybody knows the full consequences of what this order would mean, but what has happened is that this issue has been taken to a whole different group of people. There was a workshop recently in Olympia for people who are doing purchasing for their agencies. So all these purchasing coordinators went to this meeting to learn about PBTs and some of the products they might be in. This means, state agencies in the state of Washington are making an attempt to purchase products that don't have these chemicals. That, in turn, is going to assist companies who are trying to make things without PBTs. So, there's a huge ripple effect in reaching businesses and different groups of people.

This means, state agencies in the state of Washington are making an attempt to purchase products that don't have these chemicals. That, in turn, is going to assist companies who are trying to make things without PBTs. So, there's a huge ripple effect in reaching businesses and different groups of people.

MM: What kind of issues are purchasing agents going to have to struggle with?

DG: If you look just at the flame retardant PBDE, polybrominated diphenyl ether, you find these are in carpeting, they're in chairs, they're in desks, they're in computers, they're probably in the fabric that separates the offices in state buildings. They are in the foam cushions in your couches at home and at work. They're in virtually everything in an office. So, if you just think about one chemical, purchasing coordinators are going to have a very difficult time finding products that don't have these flame retardants in them. The other difficulty is that right now people are not required to label what's in their products, so you

don't know if the chair or the couch that you're buying has a flame retardant because there isn't a lot of requirement for that labeling.

MM: I understand that these flame retardants are PBTs, but how do they act upon the body?

DG: There are a couple things. One is that the public is referring to this as the son of PCBs, and PCBs are a very toxic chemical that was banned, I think, in 1979. There is still lots of controversy on the effects of PBDEs. There are reports, which state that they effect the thyroid, and the developing brains of children during pregnancy. Even though it was banned 25-30 years ago, it still shows up in our environment, and this flame retardant has the same kind of persistent and toxic effects as PCB, and it's still being produced in our environment. In fact, the United States produces the majority of this chemical in the world. So right now in Ecology there's a PBDE committee to try to come up with a plan for reducing PBDEs in Washington. There is also an external advisory committee that is looking at what we're doing. The first PBT chemical that we worked on was the Mercury Chemical Action Plan, and then this year we're working on the flame retardant.

MM: It seems there have been some headlines about PBDEs recently, about the fact that they're stored in the body's fat cells, and it's being detected in women's breast milk, correct?

DG: There have been some studies done that show it's not just PBDEs, but there's over 100 chemicals that are found in women's breast milk that are toxic. PBDEs are being highlighted right now because of the amount that's being found in women's breast milk in the United States is increasing. I believe it's doubling every five years. Whereas, in the European countries, they have banned this chemical. Since then, they announced that its presence in women's breast milk is decreasing, so they've been able to show a correlation.

MM: You mentioned that last year you did the Mercury Chemical Action Plan and that this year, you're taking on PBDEs, the flame retardants. Is that the strategy, one a year?

DG: Depending on funding and the Legislature, the agency will probably work on a chemical a year. As for my personal perspective, I would really like to see the agency put together some kind of a communication plan or strategy that addresses PBTs as a whole because I believe it's going to be confusing if we go out to the public with a new chemical every year. I think it will be testing the agency's credibility, making the agency look like we're saying, the sky is falling again this year, now it's this. So, I'm hoping that the agency will come up with a plan to talk about these kinds of chemicals in general and to offer some general guidelines on what people can do to reduce their exposure to these kinds of chemicals.

In the Toxics Cleanup Program, we have a group of people who are working on something called area-wide contamination. And right now, the chemicals we're focusing on are lead and arsenic that have come from smelters and from lead arsenate that was used in some of the orchards in Eastern Washington. What we've found now is that we have this low-level contamination problem throughout the state. Some of the ways that people can protect themselves are similar to some of the ways I believe that people will be able to protect themselves from these kinds of chemicals. So, I'm hoping that at some point soon we in the agency can look to the area-wide as a model for how to address the PBTs.

MM: I wonder, when you meet with the public, many of whom may not have a scientific background, if you ever worry that some of them are making an associative assumption about their illnesses. What are your concerns about their knowledge base?

DG: It's important for me to make sure that we give people the accurate information they need. I think it's very easy for people to make links, especially if they have health issues or know somebody with health issues and there's an unknown root for them. People want to know why something is happening. There are other instances, though, where there are huge disagreements about whether something is an issue or not. The mercury dental amalgam is a perfect example where you have tons of people coming up and testifying about how their mercury fillings affected their health, and when they had their mercury fillings removed, they had felt so much better. You have other people saying the opposite. Then you have people who might be representing the dental industry who come up with scientific information that shows there isn't a health issue. And then you have to balance that with another perspective that, because of the cost, it's easier for people to afford them. And then you have another perspective that, well, this could be an environmental justice issue. So, any given topic can create all kinds of different perspectives, and there will be disagreement for a long time about which is accurate. That happens.

MM: Is there a disagreement within Ecology, or between Ecology and the Department of Health, about issues such as mercury amalgam, and the level of health risk related to that?

DG: It would be the Department of Health's responsibility as to whether this is a health issue or not, because that's their expertise. What we focus on is the environmental part of it, so we've been working with dentists, telling them, you need to have traps in your office to collect mercury so it doesn't go into the environment. We rely on the Department of Health for the health information, and we also look to EPA and some other federal health agencies to get accurate health information. We have toxicologists in this agency, but on these issues we're primarily looking at the Department of Health to help us with the health messages.

MM: Tell me, after the public meetings, after gathering public comments, how were these incorporated and how did those meetings impact your strategy?

DG: When we went out and did our five public meetings, people were commenting on the draft strategy. We took those thousands of comments and tried to incorporate them into a proposal, the proposals that we actually gave to the Legislature. I think it's very easy for people to think that we did not take their comment into consideration, and that's because very often comments are conflicting, they override each other, and so we're trying to incorporate the majority of people's comments, but also trying to address everybody's concerns. And we did have thousands of comments. WashPIRG alone handed us 2,000 comment cards. They handed us the box at the public meeting; it was wonderful.

In this agency we have a very high number of independent-thinking professional staff, and we have a lot of people in this agency who have a heart connection with their job. They're working here because they really want to make a meaningful difference in the world.

MM: You had mentioned Washington state being the first state to adopt a PBT strategy. In terms of the work I've done on this project, I hear that a great deal, that Washington, particularly the department of Ecology, was the first to do one thing or another, and I'm wondering why that is?

DG: In this agency we have a very high number of independent-thinking professional staff, and we have a lot of people in this agency who have a heart connection with their job. They're working here because they really want to make a meaningful difference in the world. I don't know why Washington is the first. I think it's just because people are willing to take the risk. It is a risk.

MM: What is the risk?

DG: Well, that you're doing something that no one has done before. So, you don't have a model.

MM: Is there a risk, then, of doing it wrong?

DG: I don't think it's about being wrong. For example, when we first did the PBT strategy, when we first came out with a list of chemicals, we got comments like, it's not enough. We also got letters that were saying that we needed to take a different path or there could be legal consequences. So part of the risk part is that you start pushing people's buttons.

MM: What are the legal consequences? Could the agency be sued for naming a specific chemical as a PBT?

DG: It's more that people would see the agency as threatening their economic viability because they're not able to produce, or they may not be able to compete with other states because we may make a decision in this state to not to allow a certain chemical. If you have all the other states lining up with the ability to produce or use that chemical, there's a potential for affecting competitiveness.

MM: Then what's at the basis for making these decisions? What has to be at the base in terms of making these decisions to put certain chemicals on the list?

DG: We had, as part of the PBT committee, a group of toxicologists and scientists who looked very carefully at the amount of risk that the different chemicals have, and they came up with a ranking system, and they ranked and scored the chemicals based on their toxicity. So, the agency made a decision to start addressing the chemicals that looked like they were the most harmful to people's health. Now, the PBDE itself as a flame retardant, I don't believe is on the original list. But it's been coming up so much in the last year—it's been called the son of DDT—in order to call attention to the significant toxicity of it, the agency really had to work on it. The governor signed an Executive Order in January 2004, declaring his commitment to phasing out PBTs in Washington state. I believe he called for and implementation of the Mercury Chemical Action Plan, the development of a chemical plan to address PBDEs, and the development of list of toxic chemicals that pose a threat to human health and to the environment in Washington state. He also asked that state agencies not purchase products containing PBTs unless no alternate is available, and that those agencies adopt measures to reduce the use of equipment and products that contain PBTs.

MM: OK, I'm going to ask a very naïve question. Why does it take things like executive orders to get the ball rolling? Isn't ridding the world of PBTs a good thing because there's an association, a link, between illness and PBTs? Why would anyone be unsupportive about the work that Ecology would do?

DG: Because we have created this culture for ourselves, we have made choices to want certain things in our lives that have these chemicals in them, or are used in the production of the products we want or need. Here's an example: We were at a public meeting in Seattle, and one of the big issues we were hearing from the public is that people want Ecology to have zero tolerance for this, no emissions of PBTs. The crowd was getting pretty heated, and somebody in the back of the room stood up and said something very simple and very profound. He said, everyone here who drove to this meeting tonight produced PBTs. It is so prevalent in our environment that there are people with the very, very best intentions in the whole world, who would still have a difficult time not, in some way, contributing to PBTs in the environment. Every time we get into our car, or barbecue—it's the culture that we've created for ourselves.

MM: So, we can't nail this on industry. We can't say, industry is creating this and industry is against banning this? I think what you're saying is that it's so much larger than that. It has to do with our life choices, how we live our lives? Is that it?

DG: I think it's really hard for any one of us to understand the collective effect we have on the planet. At one time, the impact one of us may have had to a water body, or to air or the land, was pretty insignificant. There's just so many of us now that our collective activities do have an effect. In addition, we make an assumption that things that are produced for us are safe, and we are starting to realize that that assumption is false. Many things that we've decided we need for ourselves have chemicals that are harmful. There's also differing perceptions on what that level of harm is, or even if it is harmful. There's a lot of disagreement about that. Also, people make choices every day about what kinds of risks they're willing to take, and when they look at everything that they've got going on in their lives, they may decide that particular risk isn't even worth thinking about. I believe that even someone who has the purest intentions not to contribute toxic chemicals to their environment will do so in some way, because our culture, at this point in time, is set up in such a way that doing otherwise isn't really possible. We don't have a lot of alternatives.

MM: It almost seems that we can do things to reduce our own output of PBTs, right, but it also seems to completely stop putting PBTs into the environment at any point seems hopeless. How would you describe the situation?

DG: I don't think it will be possible to discontinue generating the majority of PBTs in the next, say, 20 years. I believe it will take longer than 20 years to do this simply because we are still discovering the extent of what PBTs are, and also because people are willing to live with a certain amount of risk in their lives. It's going to take some time for this to shake out. What we used to tell people at the public meetings was that, 10 years ago, we didn't have the bicycle helmet law and hardly anybody wore bicycle helmets. Now you see them all over the place. It's one of those things that, unfortunately, take time.

Appendix A - Oral History Q & A

by Maria McLeod, oral historian

Q: What is the appeal and advantage of Oral History over more traditional historical writing?

A: Ecology's Oral History is designed to appeal to and invest the reader in the historical details of the agency through the anecdotal/compelling stories told by the interviewees. Further investment in the story stems from the reader's interest in the storytellers. This is achieved through maintaining the spoken word, a vernacular and syntax that can only be derived from taped interviews, during which interviewees offer up their account of events with candor, simultaneously creating a historical record. As a result, readers find they are privy to the "real story," wherein the biases and emphasis of the storyteller are self evident, versus a more traditionally written version of that history. (Although editing does take place, the goal of that editing is to bring forward the essence of the story and to provide clarity.)

Q: What are the limitations of Oral History?

A: Oral History, especially an oral history of an entire agency, can only be representative versus comprehensive, as the historical information gathered is from interviewees whose recollections serve as the primary source for that historical information, versus a more traditional historical document which is typically the result of a combination of secondary sources (mainly historical printed materials). Recollections, within the interview, are often selective, sometimes flawed, and rarely linear, making a comprehensive historical telling difficult, if not impossible, to achieve. In response to these limitations, the OHC (Oral History Committee) developed strategic solutions, such as interviewing more than one individual on a single subject, as well as adding a fact checking/review phase which provided an opportunity to add missing information.

Q: What is the structure of Ecology's Oral History?

A: Ecology's oral history includes 13 chapters, augmented by an introduction, a forward, and these appendix pages. The 13 chapters, the book's centerpiece, are thematic in nature, generally focusing upon an Ecology program (or a combination of programs) and an event or issue faced by Ecology within a specific era. They are ordered, more or less, by the year (or approximate year) that marked the beginning of the Ecology event/issue that is the theme of the given chapter. Each chapter includes the edited interview transcripts of three to four interviewees, each of whom speaks from a particular perspective on the same issue.

Q: Who is the intended audience?

A: The target audience for this history includes Ecology's current and future employees, as well as students, historians, and the general public, especially those who wish to understand Washington's environmental issues and state government. The intention is to orient and educate readers about the history of decisions and actions that have created the agency and the policymaking environment existing today.

Q: Who are the interviewees and how were they chosen?

A: After the OHC collectively decided to structure the book around events/issues faced by Ecology, interviewees were suggested based upon whose availability, experience, memory, and ability to communicate would best serve that particular chapter. In most cases, program managers were consulted. As each chapter includes three to four interviewees, individual perspectives and experiences (which were unique from one another) were also considered. Chapter advisorswere consulted about those choices (see next Q & A), and, in some instances, suggested interviewees themselves. Although most interviewees are, or have been, employed by Ecology, some serve institutions or organizations outside of Ecology, such as the EPA.

Q: What does the interviewing process entail, and what is the function of the chapter advisor?

A: In order to gather background information and develop questions for the interviewees, both the oral historian and the volunteer interviewers (four volunteer interviewers were involved with this project) met with designated chapter advisors, consisting of OHC members whose relationship to the chapter's theme was in someway expert. Interviewers then developed questions and forwarded those questions to the chapter advisors for comments and suggested revision. After Chapter Advisor input, interviewers forwarded interview questions, project information sheets, defamation information, and release forms to the interviewees. Interviews were conducted either in person or over the phone (90 percent were in person), and lasted anywhere from 1 to 3 hours, during which time interviewers asked questions that were already put forth as well as questions that occurred to them in the moment.

Q: What did the editing process entail?

A: After the interviews were conducted and the tapes were transcribed, the resulting transcripts were sent back to the oral historian for editing.

Editing included: Reordering of the Q & A; deletion of insignificant or inconsequential text; deletion of verbal stutters or extraneous speech, replacement or deletion of non-specific nouns; added language, via the editor, used to create absent transitions, or to help clarify terms; correction of some grammatical errors; correction of inadvertent moments of misspeaking; correction of mistranscribed terms and typographical errors; revision (or inclusion) of the interview questions (when necessary); deletion of text that may have been repetitive.

Q: What does the interviewee and chapter advisor review entail?

A: The interviewee received the edited version of their transcript and was asked to review it for accuracy. They are specifically cautioned against rewriting their verbal responses. They may be asked, however, to fill in missing information. If they feel particularly uncomfortable with any portion of their text, they may strike or suggest rewording of those portions. They then send their transcript back to the oral historian to incorporate those edits. The Chapter Advisor also reviewed the transcript for accuracy and sections that may have been in some way questionable. The interviewee and the chapter advisor then sent copies of their comments to each other while simultaneously sending their comments to the oral historian. After the oral historian incorporated interviewee and chapter advisor comments, the chapter was then put together (with

introduction and titles) and was then sent to the entire OHC for review as well as to a proofreader. Chapters that focused on any issues that included pending legal cases were submitted toan Ecology Division of the Attorney General's office for legal review.

Q: What are the ethics and guidelines for conducting oral history interviews and preserving oral history?

A: The ethics and guidelines for conducting oral history are posted on the Oral History Association's website. In general, it is paramount that the interviewee be made of aware of the function and purpose of the interview and the resulting transcript, specifically the treatment of that transcript. It is also paramount that the interviewee approve of changes made to his/her transcript. For further information see: www.omega.dickinson.edu/organizations/oha.

Q: What are the legal obligations, publication protections, and responsibilities to the interviewee?

A: The interviewee signs a release form, which grants permission for Ecology to use his/her words and which states that s/he understand the information on defamation which has been presented. Further protection of the publication, and their words, has been made through obtaining a copyright, obtaining an ISBN number, and registering a book with the Library of Congress.

Appendix B

Overview of Ecology's History: An Operating Budget Through 2004

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