ROB BAUER

March 11, 1996

Tape 2, Side 1

M.O'R.: This is a continuation of the interview with Rob Bauer on March 11th. So what we you saying about depression now?

R.B.: Well, it was just seeing this insurmountable stack of paperwork and trying to figure out, you know, what caused this particular event. First you weeded out which ones were obvious mistakes on their part, or somebody forgot to sign page 12. Got rid of the ones were obviously errors on their part from not understanding it. But then we had to say, you know, "misinterpreted due to blah blah blah." And then the ones that did look like we had to go figure out why they were and categorize, and that helped us guide where do we want to spend the money, what do we need to do? You know, if there's 36 events like this that caused a problem, how do we solve that problem?

So it was just a long process to do all that. Then seeing it settled for one percent of what they originally started with. And well, then the next lawsuit was the TMDLs, which, you know, before they had like arbitrarily said ten BOD. And then the TMDLs are the total maximum daily loads, they tried to apply some science to come up with a number, to justify the number.

M.O'R.: Right.

R.B.: You know, it's easy to justify the number 10, it's a nice round number. Or they actually looked at the ecology/biology of the river, and said, okay, what happens at this level of ammonia, this level of phosphorus, do computer models, do lab testing and come up with the total maximum daily load of the ammonia, phosphorous, and other things. This had been on the books for years, and nobody had done it nationally anywhere.

M.O'R.: I mean, you weren't even worried about phosphorus before all this.

R.B.: Well, yeah, it was the best practicable treatment. So it was the best you could do with the technology that you had.

M.O'R.: Right. But there was no standard yet.

R.B.: Right. There was numerical standard. So they came up with this .07 milligram per litre phosphorus, which is lower than the rainfall. We've got rainfall samples that have more phosphorus than that.

M.O'R.: And this is in the river itself?

R.B.: In the river, right. And so the river already exceeded that, so you couldn't put any more than the .07 because the river had no assimilative capacity. It was already above .07. So you could dilute it by having it .07 or less. And the technology really didn't exist; there were no plants running at that kind of levels. So then we did pilot programs and we looked at the literature, and well, you know, here's 20 different ways we could hopefully do this, you know. Well, this one's ridiculously expensive - you know, narrowed it down, did some small-scale tests, you know, tests where we did half the plant, and found a way that we could do that and meet it. And so that had to go into effect in '95 or something, so in '91 we did it full-scale to see if we could do it, you know. How reliable could we do it, would it upset the rest of the plant - because we were on the leading edge of technology at that point. And so I was involved in some of those pilots, testing out the different methods of dealing with phosphorus.

M.O'R.: There was in fact a belief on the part of quite a few people that you couldn't achieve the standard, right?

R.B.: Right. The engineers: "Gee, nobody's doing this, it's such a low level that it's hard to, you know. We've got to change

our equipment in the labs so we can test for it, because it's so low." And if it's 70 parts per billion, you can't operate at 70, you're going to have to operate at 30 or 40, in case you have a problem, because if you go up to a hundred parts per billion, or two hundred parts per billion, which is only two-tenths of a milligram per litre, you can't get down physically low enough to bring that average down. So it's really critical that you stay down low.

So from a technological point, that was exciting to develop the technology and see it work and work out the bugs.

M.O'R.: And as it turned out, it was achievable.

R.B.: Yeah.

M.O'R.: And not at least unacceptable economic cost.

R.B.: Well, yeah. I'm amazed at the high tech industry's moving in, because, I mean, we've got to have pretty significant sewer bills compared to other places - because of the infrastructure we've had to build, the chemicals we use.

M.O'R.: Do you think that the lawsuit wound up having a positive effect on the Tualatin itself.

R.B.: Well, what I kept saying was, you know, okay, if we meet this .07, at some point people are going to look at the river and say, "Well, where's that 200 million I spent? Why doesn't the river look any different?" You can look at it through a fluorometer and measure chlorophyll A and it's gone from 18 micrograms per litre and the standard's 15, and it's gone to 13, you know. But when you look at the river basically it looks the same because of the silt in the river, and I've expected a big backlash that: "Well, how come it doesn't look like the Clackamas?" You know, we spend all this money to clean it up and have been surprised that there hasn't been a backlash that we spent all this money and it looks the way it does. I'm a little surprised that there hasn't

been. You know, it's probably because so few people've ever seen the Tualatin. But the turbidity has improved, you can see a little deeper into the water, the treatment plants are diluting the river, you know, the turbidity and stuff is actually less.

M.O'R.: Do you think that the lawsuit has had an impact outside of just the Tualatin Basin?

R.B.: Oh, yeah. There was a national agenda for both lawsuits, and especially the TMDL. They're pushing the TMLD now on the Willamette, you know, and probably the DEQ went through the same anger-depression-grief-acceptance that we did, because they had been doing their job and had good relations with the plants and understood that you can't go 53 miles an hour forever. Once in a while downhill you're going to go above it or whatever, and it's no big deal to the river. You know, because these are just scientific wild guesses, as the 10 milligram per litre or whatever. And to have somebody with a big gun on them, and with the declining funding that they've got - you know, we were able to get increased funding; the DEQ has probably responded and gotten less funding.

M.O'R.: So we have this national impact. But do you think that's been a positive thing?

R.B.: Well, it's shown that it can be done. It hasn't cleaned up the Tualatin, you know. From a guy driving over a bridge in 1985 to now, his eyes aren't going to be able to see that there's, you know, 30 micrograms of phosphorus less, or algae less. You might see a reduced algae bloom down around Stafford or something, but the annual variations of the weather -.

One thing I did was went to the National Weather Service and got the minutes of sunshine for like two years, sat there and wrote them down and entered them in the computer, and that's really depressing. When you're writing down how many minutes and the percent of sunshine - zero, zero, zero, zero, zero, you know. Then

there's a couple sunny days. And that was the best correlation: sunshine and algae. You could have phosphorus and no sun, you wouldn't have algae.

M.O'R.: Right.

R.B.: You had sun and phosphorus, boom, you had algae, you had sun and no phosphorus, you got algae because there are different strains of algae. If you take away the nitrogen, there are nitrogen-fixing algae that will pick it out of the air. If you take away the phosphorus, there are algae that are very thrifty with phosphorus and don't need much. And so you're just shifting the ecology of the water. You fill up the kid's wading pool in the back with Bull Run pristine crystal-clear chlorinated tapwater and you come back two weeks later, it's a green slimy mess.

You know, the Tualatin takes a month to get from the upper end down to the lower end. Lake Oswego, the same thing. I swim in Lake Oswego and it gets really green in the summer. It takes, oh, three months or something for a gallon to come in one end and out the other. So imagine filling your swimming pool at the start of the summer and not putting any chlorine in it, fertilizing the lawn, having the fertilizer run off into it ...

M.O'R.: Of course you toss in a little copper sulfate.

R.B.: Oh, yeah. Every once in a while.

M.O'R.: Well, I guess the way Jack Smith explained this to me was that he said that you wouldn't expect to see an improvement in the algae levels with the reductions that have been seen, even though they've been quite dramatic.

R.B.: In the phosphorus levels. Right. Yeah.

M.O'R.: Because he says that the algae wouldn't actually become phospor-limited until you dropped actually even further.

R.B.: Right. It's not a great lake. Great lake, the phosphorus was the limiting nutrient, you know. Here it wasn't,

and so you could be cynical and say, "Well Jack, well why'd you that? What's the point?" You could pump the entire flow of the Tualatin into a drinking water plant, turn it crystal clear and put it back in, and the phosphorus coming up from the sediments and everything else in a few miles, the mud being stirred up as it moves slowly down, it would still look the way it is, you know. Geology is destiny. I think Freud said anatomy is destiny, but I think geology is destiny is really true.

M.O'R.: Still, it might be that the legislation would allow, or would break some ground in terms of rivers that maybe are more burdened than the Tualatin by, you know, man-made sources of ...

R.B.: Well, yeah, you need to apply good science to it. I think they're coming to the realization that the phosphorus limit isn't going get what, you know, they thought it would do, or it - it's almost like regulation for regulation's sake. The big issue now is temperature, which in the river is too warm for a coldwater fish. But the coldwater fish are only transferred there in the fall when they swim up to the upper headwaters. And in the spring when they go down, you don't have steelhead and coho salmon in the main stem of the river in August. But, you know, after they do temperature, the only thing I can think that's left is taste. You know, because when you reduce the phosphorus down to that low of a level, there can't be anything there because anything that has a little bit of phosphorus, you have to remove it.

M.O'R.: Now Jack Smith actually came to work for USA for a while as a consultant, didn't he, after the lawsuit?

R.B.: Yeah. I wasn't involved with that. That's up in the upper levels. I heard his name bandied about that he's ...

M.O'R.: I had the impression that he had a better relationship with USA management than -- certainly than Jack Churchill.

R.B.: Yeah, I guess.

M.O'R.: It sounded like Churchill, who I haven't talked to, was quite a combative character in this.

R.B.: Yeah, I threatened my bosses - Churchill was running for some office - I said, "Well, I go pick up one of his signs and pound one in front of your office window." You could just see how the press would take that, you know. USA employees stealing campaign signs.

M.O'R.: So, in terms of the TMDL, total maximum daily load, it turns out now that there's a lot of discussion about non-point sources.

R.B.: Well, what's been real interesting is the groundwater. The history of the Basin was it was like Puget Sound, at one point. If you drilled deep enough, you can hit salt water. So just like Puget Sound is, you know, has the Coast Range like sticking up here, and so the salt water was down here. The Bretz floods came from Eastern Washington and washed the soil into this area, washed high phosphorus, really fine windblown loess type soils into the area, and that's what gets suspended by the Tualatin.

When USGS did their model, they accounted for all the point sources, estimated non-point source, and their model accounted for all the phosphorus except for 30 to 50 pounds in this one stretch of the river. So they're scratching their heads: "Well, what's happening here?" And they had assumed the groundwater wasn't a significant source of phosphorus, and so they got all the well logs about when the well-drillers drilled the wells, and then they sampled wells for phosphorus, and they found that if a well was 80 feet deep, it had high levels of phosphorus and ammonia. If it was 100 feet deep, it was low. If it was 60 feet deep, it was low. And the well-drillers log said, you know, woody debris as they went through this one layer at 80 feet. And they're scratching their heads and going, "Well, what'd we hit, a dinosaur? Why is all this

stuff there?" And what I think is the first Bretz floods washed over there, washed all the vegetation that was growing, the woolly mammoths and the mastodons, what have you, that were in Eastern Washington, they swept in here and formed an organic layer. And then the next flood came along and covered that organic layer with - because there's only 50 years between the floods, so there couldn't be a whole lot of regrowth. And the climate was much colder than it is now. It covered up this layer and the phosphorus -.

I can remember this as a kid: They put fertilizer alongside like strawberry plants, and then, you know, I can just visualize this, we'd take a shovel and dig a hole and take core samples of the soil. You could see where the fertilizer had been put in, you know, two inches below the soil level. And then we'd take cross-sections, and the phosphorus wouldn't move. The nitrogen, the potassium, other nutrients would move because they were soluble. But the phosphorus - with the aluminum and the iron in the soils - was insoluble, so it would stay put.

So what that told the farmers, once you put phosphorus on the soil, then you could next year you just buy ammonia or the nitrogen and the potassium and you didn't have to keep dumping phosphorus, because it didn't wash away unless you washed your soil. But under anaerobic conditions, the phosphorus is released. This is aerobic soil that has aerated down quite a few feet. Which surprised me that wells have oxygen in them. I thought, you know, once you got in the dirt, it was anaerobic. But it's actually aerobic.

So there's this anaerobic layer that released ammonia, it released the phosphorus insoluble forms. And then they wondered, "Well, is that getting into the river?" And they went out in canoes and they drove sandpoints, which is a pipe with a point on the end of it and then a screen around, and you drive them down

into the soil profile until you hit like a sand layer, and then the water comes in and you can pump it out for your well. So they'd be in their canoes pounding these things in, and water would be squirting out the top of it five feet above the surface of the river. So the water that was underneath the river was under pressure.

And when they'd sample those, it wouldd have up to 3,000 parts per billion, or three milligrams per litre of phosphorus, and the river's standard is seventy, and these were three thousand. So we know if you punch a hole you can get it, it's leaking up naturally. So then they took 55-gallon drums, cut them in half, and would scuba dive to the bottom and stick them down in the mud and had a bag that measured how much water came up through that diameter that was covered by the barrel. And they figured that if a very slight percentage of the footage of the river, you know, in these miles leaked this much stuff, it was only two or three cubic feet per second of this rich phosphorus stuff that would make their model, you know, balance, that they could account for all the pounds of it.

So that was kind of an eye-opener, that the underlying geology is, you know, oozing this phosphorus, and they had thrown it out of the original equation. You know: "Well, we'll just assume the groundwater's zero." Because typically it is. In that water pollution class I had, that same professor got up there and there was a lecture room with three blackboards, and he started writing this equation. And it had, you know, a factor here with parentheses with K-T2 with another set of parentheses exponential stuff up here, and then, you know, thirty or forty different elements of this huge equation, basically that predicted if you dump some sugar or nutrients in the river, how many miles down would DO sag, and what the DO sag would be. It was basically like the model.

So all the students were busily writing this thing down as fast as they can and were just intimidated. Which was his point. So then he goes, "Well, let's see. Ah, the oxygen that's consumed by the mud on the bottom is going to be equal to the oxygen that comes in from wave action." So he'd erase those two. They'd cancel each other out. And then he'd say, "You know, the oxygen produced by algae, that's equal to the oxygen consumed by the stuff upstream here." So he threw out, you know, two-thirds of this equation, so it was manageable, and they had done basically the same thing.

M.O'R.: Make some assumptions to make it a doable problem essentially.

R.B.: Right. And then when it doesn't fit the real data, then you have go back, and that's when the real fun is.

I think they're going to be publishing that this year, they're really - they do this peer review and they're really slow at releasing the details of what's going on to the public because they want to be absolutely sure that, you know, it's unimpeachable, that it's the final word, and nobody's going to say, "Well, you forgot the T here."

M.O'R.: You and I both attended the Tualatin River Conference here about a month ago, and there was some conversation actually at that Conference about the idea that maybe the phosphorus limit that you're striving to achieve now on the Tualatin maybe is too low, that it's not achievable because of geology and other things. But at the same time, there was a perception, I think, on the part of at lot of people at that Conference that real strides have been made in improving the quality of the river during these last ten years or so.

R.B.: And one thing that a lot of people aren't aware of is that agriculture has begun to do things. There's a dairy that had

been there for a hundred years, and for a hundred years the cows have been wading out in this acre pasture that was nothing but a level pile of manure. I mean, they'd been standing out there three hours a day for the last hundred years, and it sloped and it ran off into a creek that went right into the river.

I went by it this year - well, last year there weren't cows in it, there was no grass growing because the nutrient levels were toxic. The ammonia levels were so high that nothing could grow in it. This year, now, it's starting to be a grassy field, that the nutrient levels have gone down, so there's a significant load of manure that's going in the river.

Talked to a crawdad fisherman who said he'd put his nets, you know, up this stretch of the river and they just came up slimy with no crawdads in them, and then he went back a couple of years later and - full of good crawdads. And he was wondering what USA had done. iT was like ten miles upstream of any USA plant. But it was in an area of container nurseries. They used to pump water from the river and irrigate their plant containers, and so you've got a six-inch round pot that's sitting on gravel, and when you sprinkle it most of just goes on the gravel and the gravel roadway. What goes in the pot runs straight through the pot and out the bottom, and you have to sprinkle a lot because it dries out real quick. So maybe 90 percent of their water isn't getting into the plant. It's basically wasted.

They would put herbicides and stuff in the water and on the plants, and when they were asked to like recycle their water, they said, "Oh no, there's too much junk in it." You know, it's too polluted to put on their plants, but we'll just dump it in the river. And the Department of Agriculture now requires backwater ponds where the water draining off from the system is recycled, and they have to reuse it and not discharge it into the creek. So they

have to use then chemicals that aren't going to cause them problems or they have to reap what they have sown, basically.

those two things have made significant improvements, and People really aren't aware of them. Ag has a long ways to go, and there's some new regs that are just coming on this year that will really help to do that. I don't envy the guy who has to enforce them and educate the farmers that you can't just put a big pile of manure out in the field and let it sit there all winter long, that you need to keep it covered and then when you take it out, spread it at a rate that the plants can consume it. Because Mom, apple pie and American agriculture have been exempt from a lot of regulations, and they're willing to take their subsidies but no other government interference. Independent and cantankerous and the whole nine yards.

M.O'R.: Even something as simple as leaving a little bit of the field along the edge ...

R.B.: That's what this new legislation addresses.

M.O'R.: ... untilled so that you don't have the erosion.

R.B.: "Yeah, but I'm paying taxes on that." Well, farm taxes are incredibly low. You know. We've got a farm, and it's like $270 for 36 acres.

M.O'R.: Is this still the same farm? The one up in Washington?

R.B.: Yeah. Yeah. You know, you don't have any kids going to school from the farmland, you don't call the police because somebody stole the farmland, so they County has minimal costs with it, and so the taxes are low. Justifiably so. So when they say, you know, "Hey, I've been taxes on it," they haven't been paying a lot of taxes. But there's going to be a lot of resistance on that.

M.O'R.: So you think that's going to be a long haul with the farmers, then?

R.B.: Oh, yeah. You can drive down the road and south of Forest Grove, there's a mountain of pesticide containers that are just laying out in the field. The guy fills up his airplane, flies around, leaves a mountain of them there blowing through the fields, you know, probably not rinsed, not disposed of properly. They don't like to be told how to behave. The Wild West, the last bastion of independence, you know. So if you can do a win win kind of situation where there you can show them if you cover the manure, then the nutrients don't all wash off here, that you can get the nutrients back out in the crop, it makes more sense. A lot of the times they're just doing things that are self-defeating because it's the easiest way to do it, or that's the way Daddy did it.

M.O'R.: So it's partly an issue just of education and getting them on board that way.

R.B.: Right.

M.O'R.: What other opportunities do you see for improving the quality of water?

R.B.: Well, public education - "Gee, I saw my neighbor change his oil over a storm drain." I mean, people will drive their car up over a storm drain, unscrew the plug, drain the oil directly in the storm drain, and put the plug back in and then fill it up with oil and drive off. Pretty convenient. And for some reason, paint. They love pouring paint down the drains. I mean, I've been looking at water a couple of times, and here comes this big gush of white milky stuff, because they've washed out their paint equipment and dumped it down the storm drain.

M.O'R.: So you'll see it actually in the plant?

R.B.: No, this will be like one time I was at the Lake Oswego Canal, standing there looking at the canal, and here comes this white stream off the storm drains coming into the canal.

[End of Tape 2, Side 1]

M.O'R.: If someone does drain their crankcase into a storm-drain or throw away their paint there, is this something that a typical wastewater treatment plant can deal with?

R.B.: Well, no. There's two separate systems. There's the stormwater system and the sewage system.

M.O'R.: That's right; at USA there's two separate systems.

R.B.: Yeah. For some reason they call it the sanitary - you know, the sanitary is full of sewage, which doesn't make a lot of sense. That's a separate system.

Here in Portland it's a combined system because initially the biggest problem was horse manure, you know? All the horses going up and down the streets. Once they paved them, you washed that off down into the storm drains and out to the river, and when you built a building next to it, well the horse manure's going down this pipe anyway. Instead of throwing a bucket of human waste out on the street, have it go down the gutter and into the conveyance system and into the river - "Gee, I'll hook a pipe directly up to that."

So that was the logic behind that - because you imagine it like after the first rain of summer that, you know, you'd have all this dried horse manure on the street and it would be a slippery mess and washing down the gutters and into the river.

M.O'R.: So what was coming into the so-called sanitary system was not a lot different than what was coming off the street, then?

R.B.: Right. Yeah. And of course then once you got rid of the horses, there was no dilution as a solution to pollution, you know. You had 5,000 people living in Portland, you could probably put raw sewage in the river and not have major health problems.

But then when you start taking your water out of the river and the town up above, and the slaughterhouse - the density, you know, really has an impact.

M.O'R.: It's been kind of remarkable that USA has been able to accomplish what they have in view of the fact that you're constantly dealing with expansion and more development, too.

R.B.: Yeah. The thing now is when one of these chip manufacturers calls up and says, "Hey, I've got 500 jobs, and it's going to take eight million gallons a day, and I want to be running in 18 months." Of course the County Commissioners aren't going to say, "Get outta here. We don't want your business." They're going to say, "You bet. You'll have the drinking water, you'll have the sewage facilities."

But it takes like four years for government to build the eight million gallons of sewage treatment plant that it takes the industries 18 months to build the factories to produce it. So this boom is beginning to push the limits. It's kind of waiting for that next shoe to drop, somebody's going to show up with eight million gallons and we're already on, you know, construction to make, say, ten million more because that's where we predicted the growth, and all of a sudden this guy's going to take eight million out of that ten million? The concrete isn't going to be dry before you have to start building the next one, and how many hits can the ratepickers take?

M.O'R.: And of course it leads to the contruction of these huge plants, too, and all the piping and whatnot to carry the waste to the plants.

R.B.: Right.

M.O'R.: Well, it's funny. You're sort of painting kind of a slightly different picture than I thought you might paint as a member of the Tualatin Riverkeepers.

R.B.: Well, that's always been controversial, being founder of the Riverkeepers and also a USA employee. Cathy Claire, who's one of the cofounders initially was really suspicious and, you know, she'd give me a bad time about working for USA. And I'd give her a bad time about living 150 feet from the river and having a septic tank and her waste basically going directly into the river with no treatment at all. In fact, septic tank effluent is about 1,500 milligrams per litre BOD and raw sewage coming into a waste-water plant is 150. So the waste leaving there is about ten times as strong as going in there because what a septic tank does is it digests and breaks down and solublizes the solid matter.

M.O'R.: So there's a little processing in the septic tank.

R.B.: Right. And if you didn't have any biological activity, the thing would fill up with sludge and it would be done for. But it breaks down the sludge and it makes it soluble, and then it leaves and goes into the groundwater, and of course we get three feet of rain here and, you know, imagine sticking something in the soil profile and pouring three feet of rain on top of it every year, and over here there's three feet of rain and the water's coming sideways through the ground and it's coming up in the river.

Phosphorus is probably not a problem - less of a problem, because if it's aerobic, it gets tied up in the soils. But if you have this big mass of organic material and no dissolved oxygen, then the phosphorus can move in. So I'd give her a bad time about polluting more than, you know, a hundred people hooked up to USA. "You're worse than a hundred people at USA," you know.

M.O'R.: So you'd go back and forth a little bit on this.

R.B.: Right. It's like somebody can be looked at like somebody working for the Forest Service that's a member of the Sierra Club. You know. And you know, depending on your view of USA; if they're the evil enemy - you know, I'd get introduced

usually as both, and it probably damages my credibility to be a USA employee, you know. They think that you're doing the party line.

And then USA is nervous because people are - "Oh, Rob, he works for USA, and he said this," when I had my Riverkeeper hat on. So there's a potential and a kinetic there for, you know, misunderstandings and confusion. So, you know, I have my own environmental ethics and I have a reasonable knowledge of what can be done and what's important.

I've written the grant for the river mile signs that the endowment board paid for, so every mile of the lower river we've got a sign, you know, River Mile 6, River Mile 7. So when you're out paddling on this twisty thing, you have some idea of where you are. "Oh, gee, the bridge is at 16, I'm at 10. That means we've got six miles to go, we better start paddling if we want to get there by nightfall."

I was just mentioning something to somebody about sending a newsletter out to all the property owners and saying, you know, "The sheriff is out patrolling now, he really finds these river mile signs advantageous to find out where he is." We'd make it a little subtler than this, but "maybe it'd be good if you bought a river mile sign so the sheriff knew, you know, you were at river mile 18.5? If you had a problem, so he wouldn't have to kind of guess where you were?" So we could sell some of these river mile signs as a fundraiser, you know. Maybe sell 20 or 30 more signs.

And I was told, "Well, there are some people that find those signs abhorrent, that it's degrading the experience on the river by paddling along, seeing all these lovely trees, and this blue rectangular thing staring in your face with reflective numbers on it. And I just went, "Whoa." I had never conceived of them being considered ...

M.O'R.: A blight on the environment.

R.B.: A blight on the environment. You know. I could see if we had one every, you know, hundred yards or something. But their threshhold is being exceeded at one per mile, and my thought of having maybe two or three per mile on people's houses or property, they're two feet long, out of 5,280 feet, there's two feet of sign. So there's a lot of the other stuff left. So, I guess probably that's my father's side: willing to make a reasonable compromise and not be an extremist. And, you know, extremism has its virtues.

Like Jack Churchill being the extremist, calling it an open sewer, you know, because he knows the sound bites. What's going to be on the TV news. And you do need that fringe out there to push issues. Like Earth First is the lunatic fringe, and then the Sierra Club can work, you know, with people rather than having to be so confrontational. And Riverkeepers has always wanted to be - and have tried to be - cooperative and work with everybody.

One of the stories Claire will probably tell you is, the first year she talked to USA and the Sierra Club and REI and different groups, you know, to help sponsor us and help us out on this. And Sierra Club said, "Well, if USA's involved, we don't want to be involved in this." And so she said, "Oh, well, okay." So she kind of disinvites USA, and then the Sierra Club doesn't show up. So she learned her lesson, and then she said, "If you don't want to show up because we've invited somebody, don't show up. But we're going to invite everybody. Maybe you can learn something from them," you know. Maybe that's the way to do it, to conciliate and bring people together rathen than get up on your soapbox and demand that the river be sealed off from all human activity.

M.O'R.: Right. Well, I want to talk to you about the River-keepers history in detail, but I think we'll save that subject for next time, since we are kind of running out of time here. But this is an interesting conversation about, you know, is two feet out of

5,280 feet too many. You know, there's no answer, I guess, that's going to satisfy everybody on these questions.

R.B.: Right. And we're doing our issue statements, and you know, gee, everybody should eat organic food because then we won't use all these herbicides and pesticides. We harvest three to six hundred tons of pears, and I know how expensive sprays are and what happens. You know, there's no market for a bunch of scabby, wormy pears. I mean, there is no market. Some things are reasonable, and again it's that leading edge, you know. I mean, the purists are over here, and the society kind of drifts towards them.

M.O'R.: But of course, in the example you choose, though, if you can manage the pears without the pesticides and chemicals, then you have an upscale market for it.

R.B.: Yeah. For a certain quantity. Maybe not six hundred tons in the Portland area. And then the cost is going to be higher, you know, if you do like the Japanese and you put paper bags around each fruit, and you know, almost name each fruit, you know.

M.O'R.: Well, maybe just back to the lawsuit for a minute. I assume that the handwriting was on the wall before the actual final decision came down that USA did have to cough up the million bucks or whatever it was? I mean, was it an expected decision, or expected outcome?

R.B.: Yeah. I wasn't involved with that. I'm on the technical data end of things. If it seemed that they had so much wrong and so much frivolous, I would have made the argument - Send the kids back and have them do their homework again. There are some valid points here, but, you know, send the kids back, have them do their homework, because if they're getting us for not signing page 13, we're getting them for getting all this stuff wrong.

But I think that's basically how it worked is they agreed, "Okay, throw out this huge vast bulk of stuff because it was wrong, meaningless, and then there's a certain percentage that were violations that certainly didn't, you know, end up with dead fish in the river, or whatever - they were the normal - operating noise, and that's the way they had been historically run. That's the way DEQ did it, and that's the way all the other cities did it. We got lots of calls from other cities: "What is going on with you guys? What do we need to do so we don't get stuck?"

So I think throughout the state, and possibly the nation - and we had one person who said, "Have we ever been sued about that?" There was a little excursion or something like that. "What are you worried about? Nobody's ever been sued over that." We got real cranky after we got sued because a lot of people said, "Oh yeah, we did get sued over that, by the way."

So it's put a lot more emphasis on meeting and the permits were together with conflicting statements and stuff like that, and they were operated under, you know, "Okay, I know you, you know me, we understand what the whole point of this is". And then to have a bunch of lawyers sit down and look at every single word, what every single word meant. That was an educating process for both sides, so the next time permit modification came up, you know, we had scads of lawyers. You know, before, it was, you know - "Well, gee, I don't know if we can do that, or whatever." They picked these arbitrary numbers and we wouldn't pay that much attention to the language. If you want to interview somebody that was in the trenches, Donna would be a good interview on the lawsuit.

M.O'R.: Well, also on the lawsuit - of course, USA wasn't the only organization that was maybe somewhat embarrassed by it, in that the DEQ kind of wound up, I think, taking some knocks too.

R.B.: Oh yeah. Because, you know, it wasn't anything that we had hidden. It was all stuff that had been reported. You know, in the old days, things were way, way lax.

There's a story - MPN stands for Most Probable Number. When you fill five test tubes up with dilutions of water with bacteria in it, at some point, you get a dilution where there's like a bug in number 1, a bug in number 3, and one in 4, and not in 5. So you get this frothing growth and you can tell - "Oh, I captured a single bacteria." Or maybe I got two. There was no way of knowing. So there was this statistical analysis. If you got three out of five tubes, it was 427. If you got four out of five tubes, it was 692. And if you got five out of five tubes, it was greater than such-and-such. And if you had none, you could say I had less. So anyway, this term "the most probable number" is what was used, the statistical analysis of these tubes of the data.

M.O'R.: Right. So you'd never could know what the exact rule is.

R.B.: Right. Right. Now we have a test where you actually filter it on a membrane that's gridded and you can count the bacteria. And you can say there was 412 bacteria in that volume.

So the story is there was a class out at Clackamas Community College, and the teacher was asking these guys that worked at wastewater plants, and they said, "Okay, who can tell us what most probable number stands for?"

And the guy says, "Well, say like, if you're pH meter breaks and you can't find it or you're in hurry, and you look and the previous day it was 7.2, the day before that it was 7.1, the day before that it was 7.2, the most probable number was 7.1. And you'd write that on your permit. It's called graphite chemistry, where you just made up numbers where you just made up numbers.

M.O'R.: Or dry-labbing.

R.B.: Dry-labbing, right. So that was not unheard-of back in the old days of, you know, the mayor's son-in-law running the treatment plant without any training, you know, back in the '50s and '60s. There wasn't a whole lot of science to it and professionalism, you know. You had a guy that was driving a truck, and you said, "Hey, we need you here at the treatment plant. Wash this down and run it."

If you talk to engineers that go to plants, or DEQ people that go out and do side visits, they will roll their eyes because in the old days there was some pretty lax operations of the plants because it didn't matter a whole lot, you know. They weren't very big.

M.O'R.: Yeah. I take it there's always been a fairly easy working relationship between USA and the DEQ - at least before the lawsuit.

R.B.: Well, they were the regulatory agency, you know. So it was on different levels. Where I was, in the labs, we'd just a guy from DEQ would come in every once in a while and take samples to the lab and split them, and you know, compare their results to our results. And of course our results were right and theirs could be wrong. They banned [indiscernible] in a chlorine test. It caused bladder cancer. So they had to throw it all out. This was back before you had to dispose of hazardous waste. We just threw it in the garbage. And the only guy that was using it was the DEQ inspector that would come around and check your results with this stuff that they had banned.

M.O'R.: So the DEQ was using stuff that they themselves had banned?

R.B.: Yeah.

M.O'R.: Well, let's have a conversation next time about the actual starting up of the Riverkeepers and its antecedents and what

the organization has become since then. But we'll save that one for next time.

R.B.: Okay.

M.O'R.: Thanks a lot for the conversation today.

[End of Tape 2, Side 2]