

ANDY KLEIN

August 29, 1996

TAPE 3, Side 1

M.O'R.: This is Michael O'Rourke for the Washington County Historical Society continuing the interview with Andy Klein on August the 29th, 1996. Today's interview is in his office in Forest Grove.

Let me just start by asking again, what year did you say it was when you left the City's employ and started your consulting business here?

A.K.: Okay. I left the City in '62, but I worked for the Cast Iron Pipe Research Association in Chicago for four years, and then I worked for a couple consulting firms after 1966, and then it was about '72 when I started my own business.

M.O'R.: And that would be just about the time that they were completing work on the Scoggins Reservoir; is that right?

A.K.: Could be.

M.O'R.: I think they had the completion ceremony out there sometime in the early 70's. Did I ask you already why you decided to leave the City?

A.K.: Well actually, it was just an opportunity for professional advancement. That was basically it.

M.O'R.: I don't think I asked you anything about your time at the Cast Iron Pipe Association. What kind of job was that?

A.K.: I was the regional engineer and traveled pretty extensively throughout Oregon, Washington, Idaho, Montana, Alaska, Northern California down to and including San Francisco, and a part of northwestern Nevada. And I worked primarily with consulting engineers on design and selection of pipeline products, primarily, or exclusively, cast iron pipe is what we were dealing with.

M.O'R.: Also around the same period of time, the time you started up your consulting firm here after you were with the Cast

Iron Pipe Association, was the time of the drafting in Washington of the Clean Water Act, which of course ultimately made available federal money to help the Unified Sewerage Agency some of their more modern plants.

A.K.: Right.

M.O'R.: That maybe could be a jumping off point for me to ask you to comment just in general about what you've seen over the years in terms of government or regulatory attempts to address the problem of sewage and clean water. I don't know how much you may have been observing Clean Water Act as it unfolded, but whether things even earlier in terms of either state or local restrictions that you can remember that had an impact here?

A.K.: Yeah, I think we covered a lot of this in the other discussion. But you know, going back to 1950 when I came to Forest Grove, basically that's why I was here: to develop - and I think I mentioned I was here with Warren Westgarth to develop a technique or procedure for disposal of sewage effluence on land.

M.O'R.: Right. We did talk about that last time.

A.K.: Right. And at that time the Tualatin River was a mess. Stimson Lumber or the Forest Fiber Products, Gaston, Forest Grove, Cornelius, everybody just dumped their sewage in the Tualatin River with no regard at all for cleaning and whatever, and the fish kills were incredible.

And then at that time we had the state Sanitary Authority, and a fellow by the name of - I think it was Cy Everts at that time who was the head of the Sanitary Authority which handled both sewage and domestic water systems, and they put the pressure on all these communities to - if they had a sewage treatment plant, they had to upgrade it, if they didn't, they had to get one on line.

And then I think I mentioned we had this old Imhof tank down here that didn't work.

M.O'R.: Right. We talked a little about that, too.

A.K.: Right. We upgraded that, and actually we just physically got the sewage out of the river in 1950 by pumping it out on land. We built a big pond to store the sewage so we could release it later. But we did, Forest Grove did its part in accomplishing that end.

And then it was just a continual upgrading from that point, the Clean Water Act amongst others, to fine-tune the system and achieve a higher and higher quality effluence going into the river. And then when I did those studies from '72 to '74 for the Department of Environmental Quality, in many instances where we had what we call water quality limited streams, we actually recommended no discharge, that they could put the sewage in ponds or whatever, but they couldn't discharge directly during certain months of the year.

So I don't know if that really answers your question or not, but as far as the laws were concerned, I couldn't go back and give you a verbatim description of any law or when it was implemented or what the requirements were, but there has been this continual upgrading and fine-tuning.

Now we're into non-point source pollution which has more to do with the nutrients getting into the water, the phosphorus, nitrogen, things of that type, but not a definite point source. We're looking at runoff from farmlands and maybe just the natural flow of water off the land carrying nutrients and getting those in streams which in turn cause algae blooms and things of this type. But I think the progress that we're making, I think is wonderful. I think they're really doing a great job.

M.O'R.: I guess at least part of what I was trying to get at with asking about the regulations is first of all to get a sense of whether or not you think the government has been, you know, on the

curve, behind the curve, and ahead of the curve in terms of mandating clean water requirements.

A.K.: Well, I see it as being kind of a chicken and egg situation. When we did the studies for DEQ, we were the first in the nation, Oregon was, to do what they call the river basin studies. And so an economist, Tom Lucas, and I formed this partnership to take the contract with DEQ. And we would write a section of a report and prepare some outlines and prepare some task descriptions, and then go ahead and prepare a preliminary report and submit it to DEQ.

Then the next thing we knew - we were there for two years. Maybe a month later, here would come back a new - you could call it a mandate, or a new criteria would be a better word, from EPA that was almost exactly what we had written in our preliminary reports. Then a few months later, here would come another one, and then a few months later, here would come another one. What's going on here? Are we writing the criteria for EPA? It seemed so awfully familiar to us. And no one ever said we did or we didn't, but it was speculation on our part that being the first in the country - and we were using the DEQ staff very liberally, DEQ provided us with space, secretarial people, and then a fellow by the name of Fred Bromfeld who was a Ph.D. in chemical engineering, they gave Fred to us, 100 percent of his time, to assist us in writing these reports.

So I would say, yeah, they're probably behind the curve a little bit, and then suddenly they leap ahead and then they're behind and -. But the momentum is always upward.

M.O'R.: So it sounds like maybe you think that the regulations that have come down are reasonable; is that right?

A.K.: Well, of course, it depends what your objective is. If the objective is to turn the Tualatin River into a pristine stream,

I don't think it ever was a pristine stream going back 100 or 150 years ago, before there were any white men in the area here. I think it was always a sluggish, warm stream in the summertime, probably with the same nutrients getting into it at that time from - you know, grasses die, rain falls on dead grass, it washes nutrients, they go into the river. So there may have been algae blooms way back when. I don't know. There's no way of knowing.

But they will probably restore it to a point that'll be darn close to what it was many years ago. And it's interesting, too, because I've talked to some pretty educated people, attorneys and people of that ilk, who really think the Tualatin River should be allowed to be an open sewer, which is absolutely to my way of thinking totally ridiculous. I don't see how they could think that way, but I've heard it said. When you think of the fish and the wildlife that survives in a stream of that type, it's totally ridiculous.

M.O'R.: What do you think people that have that opinion, what do you think is the basis for it?

A.K.: I don't think they're thinking, you know. That's just all there is to it. It's the easy way out.

But you know, I was watching a program on TV the other night about Russia and the pollution problems they're having there, and it's a pretty good example of what we would be like if we turned our rivers into open sewers and just let them go. They're having one hell of a time right now. It's incredibly bad, and their standard of living has gone all to pot. Things are not very good. We certainly wouldn't want that here.

M.O'R.: Well, you know, that's the an interesting point in itself. Sometimes I think that people make the argument that some of these measures that are taken are extreme and that they cost too much, and that therefore it's going to negatively impact the

standard of living out here in the valley because people are going to have to pay higher sewer assessments and higher construction costs to hook up and all the rest of it, and so that in the simple-minded analysis translates to a lower standard of living because you have to spend more of your money on getting rid of your waste.

A.K.: That's right.

M.O'R.: What would you say to that argument? I mean, is there another side to that argument in terms of standard of living? It sounds like that's what you're getting at here with the Russian example.

A.K.: Well, yeah. If you think of it in terms of standard of living - well, okay. Going back to the regulations, there's always that. We see it in almost everything we do. It doesn't just have to do with the Tualatin River. It has to do with land development. It has to do with air.

[Interruption]

A.K.: What I was going to say about that, we have the regulations in everything we do, be it solid waste or air or land or whatever, and we keep upgrading these regulations all the time. I think - it's not a conspiracy, but somebody up there at EPA or at a higher level of government, the federal level, they apparently set their agenda and have thought this thing out pretty well, and they'll push hard for a short time, and then they let things level off until everybody kind of catches up, and then they'll push hard again on regulations, and then we all catch up.

There'll be seminars and things of this type, and then we put what we learn into practice, and we're grousing about it the entire time because it's a pain in the neck and it's costing my client a lot of money, but you're going to have to do this if you want to get your permit, you know, if you want to build your building or whatever. And then all of a sudden down the line, here comes

another regulation and same thing, and then we all play catchup again. So that's why I say it's kind of a chicken and egg type thing, but apparently the strategy has been well conceived and that's good. It's better than fighting a war.

M.O'R.: So you think that in the mid-70's that the EPA - that this area right here might have been a sort of a model for the EPA?

A.K.: It seemed that way. And I can't remember the number of the - EPA puts a number on everything, or the federal government does. And these were called River Basin Studies, Section 801 or something like that. And they set a general tone that there would be - of course there would be inner city actions. There would be counties. And drainage basins generally know no political boundaries. They'll go through cities, they go through counties, they may even interact like the Columbia Basin does with many states or maybe outside into another country, and from that point of view I'd say that the - what do they call the Columbia River? There's a name for the Columbia River intergovernment pact or whatever it is.

But Don Lane used to be our representative for that from the Oregon Department of Water Resources. He was executive director down there at the time, and they would have meetings. It might be in Vancouver, British Columbia, or Portland or Seattle or wherever, wherever in the Columbia Basin, and they worked out treaties relative to primarily at that time the use of the water, the construction of dams and so on and so forth. I suppose now they are doing the same thing relative to water quality. I would hope so anyway, and I know Canada's pretty sensitive to the use of the water in the Columbia River.

The Willamette River, of course, originates and flows basically in Oregon, but it flows through a lot of counties and cities, and so they all have to interreact with one another, too, and that's what - the general concepts of the plans that we were

dealing with, that's what the EPA wanted to see is primarily a management plan and how do you do this? How does county A interact with county B. So our job was to identify the sources of pollution, and you'd be amazed at how many sources of pollution can be identified; there are lots of them. And then where are the critical points in the streams, the water quality limiting sections of the various streams, and then what do you do to correct that? Would it be flow augmentation or treatment facilities, or if you have non-point sources, how do we handle this?

And that's why I thought, you know, these vegetative corridors along streams were really a good idea to. And this wasn't my idea; the U.S. Forest Service has done a lot of work on this incidentally, and the state of Oregon Department of Forestry came up with the Forest Practices Act. In Oregon we do not have an agricultural practices act. Agriculture can do pretty much as it pleases, at least at the time we did our studies. I wouldn't want to be unfair to them, but we recommended at the time we completed our studies that Oregon get an agricultural practices act, but some of the people at DEQ at that time didn't feel like taking them on because they were really too strong a lobby to try to tackle.

M.O'R.: The farm lobby?

A.K.: Yes. And we sensed that in, even here in Forest Grove, trying to get a direct route from Portland, or from Highway 26 into Forest Grove, into Cornelius, into Hillsboro, it's just hardly possible because the Farm Bureau doesn't want any of the farmland disrupted out here anyplace with a four-lane highway moving through it. We are getting some - right now we're getting some roadway changes. Maybe you drove through that way out on Martin Road. They're taking a couple of bad curves out, but we've been at that for eight, ten years trying to get that straightened around.

M.O'R.: Just to provide a more convenient access into the Forest Grove area?

A.K.: Yeah. Well, we're kind of off the subject, but I suppose it all relates. Industries don't like to locate in Forest Grove because we don't have a direct access, a good sharp clean direct access out to Highway 26. And Tualatin, Tigard, those areas are right on I-5, and they do have good access, and that's where the bulk of your industrial development occurs.

So from what I've seen of the system over the years - as I say, I grouse about it like everybody else, mainly because I hate to see my clients having to foot the bill for some of these things. But most of the clients that we have, we tell them, "You're going to have to put in a water quality pond out here, guy. It's now required, and you're going to have to trap your water, it's going to have to meet a certain set of criteria set down by Washington County, and it's going to cost you another \$10,000 bucks to do this."

"Well, let's just get on with it and get it done and don't worry about it." That's the general reaction, and so I'm finding good response. I probably grouse more than my clients do because as I say, I hate to see them spend the money.

But we wonder sometimes if it's really for the good, and then again, having developed those studies back in '72 to '74, of which probably very little was implemented, and some parts are now just beginning to be implemented, and so if it takes 20 years to do the job, why, you know, let's get on with it, let's do it.

I would like to see Metro take a more positive attitude. They're buying green space, and I think that's okay. I'd rather see vegetative corridors along all the perennial streams because I know that will work. It works in shading the streams, keeping the water cooler, keeping the turbidity out, keeping the nutrients out.

And I don't think there's been enough research done on this either, and that's another thing with DEQ: Unless you have an incredibly good monitoring system, and to get a data base, you really - it's pretty hard to develop plans or management programs without that. I know the information we had back in '72, we were able to get data out of EPA on Storette, it was called, and then DEQ had developed some stream flow data, water quality data. The USGS had good stream flow data.

But as far as water quality data, it was pretty sketchy. Grab sample here, grab sample there. You need continuous monitoring that goes right along with continuous flow monitoring, and I know it's expensive, but still, it's the only way you can get a good data base to get your management plan in hand. And hopefully, maybe they're working on that now. I don't know.

M.O'R.: Now, you said that you recommended in those reports that Oregon adopt an agricultural practices act ...

A.K.: Well, I'm not sure we really wrote it into the report, but I know we sure talked about it down at DEQ a lot with Ken Spies and Jack Wethersby, and at that time O'Scanlon was head of DEQ, and I know that it filtered up to him, too. But we may have put it in the reports, and we may have said something to the effect that we have a Forest Practices Act; a companion agricultural practices act would be a good thing.

I might say though that the Soil Conservation Service, U.S. Soil Conservation Service has done an incredibly fine job working with farmers and instructing them, training them to be better stewards of the land insofar as water quality is concerned, and they have done some great studies on turbidity, transport in all of the rivers, stream bank erosion. That's a source of pollution incidentally, stream bank erosion.

But then again, stream bank erosion is a natural occurrence, and all streams, as you know they meander, and then you get a severe flood and they'll cut through and they'll change the channel, and suddenly you've got a series of little ponds out here and you have a new channel over here. In the past 100,000 years, who knows where the Tualatin River's been. It's probably been 10 miles to the south, and it's probably been 10 miles to the north, meandering along because the whole valley is an alluvial fill that came out of the mountains over there originally.

M.O'R.: Well, if Oregon did adopt an agricultural practices act, what kinds of restrictions do you think would be important to put in it?

A.K.: Well, when we were doing the studies, Tom Lucas, the economist I was telling you about, really had not been involved with water quality *per se*. He had worked for me down in Salem and had done some really good work on - we set up a water quality, a water resources management plan for the Cook Inlet Basin up in Alaska, and we'd done some other work, and so he had a good feel for water resources and this type of thing, but when you get right down to the practicalities, he'd never been out in farmlands in heavy rain.

So we had a real heavy rain and I said, "Come on, Tom, get in the car. We're going out and take a look at - I'm going to show you what I mean by agricultural runoff." Well, here's water coming down off of farmlands and it's going right into the stream, and it's so muddy you could walk on it, and he said, "Wow, I didn't realize anything like this was happening." And I said, "Well, that's it. That's the kind of thing we're being charged to take care of. "

And then to get back to your question, you can do the same thing they're asking the contractors to do on construction jobs,

put in hay bales or silt fences or whatever, vegetative corridors along streams again, 50, 75, 100 feet back, will stop stop that, and if you'll do that -. Plowing a field, if you plow up and down and create furrows that run right into the river, you're going to get erosion right down that furrow. If you plow around on the contours, you can reduce the erosion, probably not totally, but to some degree, and leaving your dead furrows on the contour.

So, yeah, there are ways it can be handled, and if we have to have a law that, you know, if the farmers can't handle it on their own through the Soil Conservation Service or something like this, then maybe we should have a state law. We're all in this boat together. I mean, you know, it isn't just cities or industries or whatever; it's everybody, it's everybody's problem.

[end of side one]

ANDY KLEIN

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TAPE 3, Side 2

M.O'R.: Well, I guess that the objection that a farmer might have to something like that would be that they'd lose a little bit of land that they could otherwise farm?

A.K.: Well, if you go down along the Tualatin River, you'll find that a lot of the land is marshy. You know, remember I said it was a sluggish slow-flowing stream. Lots of wetland along the river. And most farmers, I don't think you'll find very many areas where they get down to within 50 feet anyway of the [river], and so there are already vegetative corridors along many streams. But now, the little streams, some of these small ones that are tributary to the Tualatin, yeah, they'll plow right down to it.

Another thing that is allowable is to allow animals, horses and cows, to water in the streams, and they do, they walk right up. We were just out yesterday down here on Council Creek on Ralph Van Dyke's property, and the cattle are right in Council Creek and, you know, they walk in it, they muddy it up. They drink out of it. It saves the farmer providing facilities for the cattle to drink. But I don't know the answer to that one other than you pump the water up to the watering trough someplace.

M.O'R.: And keep out of the stream?

A.K.: Yeah, that's a tough one because, you know, just thinking about that yesterday, you'd have to fence that stream and you'd have to buy the rights - maybe it's up to Metro or I don't know who, buy 50 feet back from the stream and fence it and create a green strip through there. And you know, those things aren't going to be done overnight. They're going to take a long time.

And the same is true down in Lake County. Tom and I went down there to look at those streams on the Thomas Creek and the Thomas Creek drainage, and same thing. Lots and lots of cattle, and they feed, they get right down in the stream. Those streams are flowing muddy down to Goose Lake. It's just the way those guys do it, and they are a breed, a different breed of cats, I'll tell you. I know a lot of those people in Lake County, and since we've had this firm, we've done some work down there at Anna Springs on Anna Reservoir, and boy, they're a bunch of hardworking guys, I'll say that, a bunch of cowboys, you know. Big ranches. I don't know that they make very much money, but it's a whole different lifestyle.

M.O'R.: Independent-minded, too, I imagine?

A.K.: Talk about independent, boy, are they ever. But regardless, I do think they do care about water quality and all of that, and they do the best they can under the circumstances. But they still are a little bit loose, and criticize the other guy. We have a good saying here in the office, and I'm sure you've heard it many times, is you never want to criticize the other guy till you've walked one mile in his moccasins, and I think that's true. But little by little, they'll get it straightened out and they'll get these streams' water quality back where it belongs.

M.O'R.: It's partly probably a question of education, too, so people understand.

A.K.: Education - it's just like drugs, it's a big part of it, you know. Until we get the kids educated, I suppose we'll have drug problems.

M.O'R.: I've talked to some of the environmentalists around and talked to people that have a certain concept of how the banks of the Tualatin, for instance, should be managed. I guess it's already perhaps illegal or at least it's frowned upon to cut down

trees along the banks of the river, and I know that one farmer told me that he ignores that because ...

[interruption]

M.O'R.: He ignores that restriction and cuts the trees anyway because he claims that it prevents him from losing land, that the tree will start to lean and he knows it's just a matter of time before it falls in the river, and you know, takes a piece of the bank with it, and so I was wondering what you think about that?

A.K.: Yeah, it was a stream bank erosion thing, and that's a natural occurrence. That's going to happen, and I don't know that you even want to stop it.

But I've heard these environmentalists also say that you should leave in the streams a certain number of dead logs and things like this for fish and other inhabitants, that they use that, that's important to them for shade and places to hide and whatever, whatever they do. So I don't know, but as far as stream bank erosion is concerned, we felt pretty strongly that it's a natural occurrence, and you really don't want to go in and riprap a lot of streams just to stop that. For a while, you know, they were throwing car bodies in streams to stop erosion, and DEQ's dead set against that. That's something they don't want, and I think probably rightfully so.

M.O'R.: I wanted to ask you a little bit, too, about a new subject that we haven't touch on so far, but there was this lawsuit filed in the 1980s. The first lawsuit, I think, was filed against the Environmental Protection Agency and was a suit to force them to enforce the Clean Water Act on teh Tualatin.

A.K.: Right, it doesn't take much to do that.

M.O'R.: Yeah. And then of course, there was a second companion suit that was filed against USA charging that they violated

the discharge permits to Tualatin with respect to nutrients especially, I guess.

A.K.: That's correct.

M.O'R.: And of course, the lawsuit also came out of the Lake Oswego community and impacted most of the people upriver here in Washington County.

A.K.: That's correct.

M.O'R.: So it's an interesting kind of story just in itself. I'm just wondering if you can tell me when you first heard the rumblings about how this came about.

A.K.: You know, I really didn't track that one hardly at all. I don't know much about it. The water quantity thing, we went over that the other day about Lake Oswego and the dam and the prior water right and all of that. But on water quality, no, I just really haven't followed that one.

M.O'R.: Oh, okay. I had heard from somebody that somebody had said that you were at a party or somewhere and heard someone from Lake Oswego talking about these problems just before the lawsuit was filed or something.

A.K.: Oh. You know, my memory is not that good on that, but I do vaguely remember hearing something before the lawsuit was filed, yeah. But I can't expound on it.

M.O'R.: Well, you must have told a couple of people about it at the time because that was one of the stories I'd heard before I came to talk to you.

A.K.: Well, Lake Oswego is an interesting area. We have some very good friends that live on the lake. As a matter of fact, we were over there not too long ago visiting them, and they really had a problem during that flood. Boy, did they ever have a problem.

M.O'R.: A lot of people had trouble down there.

A.K.: Yeah, it was very serious.

M.O'R.: Well, the lawsuit of course was ultimately lost by USA, and they were forced to do something about phosphorus, which I guess was something that they hadn't thought too much about before that time. When they only built the plants in the 70's, they didn't really track that as much as they did some of the other components of the effluent.

A.K.: As I say - boy, I'm having to reach back a little bit now, but I think they asked for proposals from engineering firms on ideas, conceptual plans for improving the water quality in Lake Oswego, and if I remember correctly, we submitted a proposal, and our proposal was to stop the in-flow from the Tualatin River and pump water back from the Willamette River.

M.O'R.: Into the lake?

A.K.: Into the lake, which was a higher quality water than the Tualatin. And we didn't get the job, so it must not have been a very good idea. But I'm still not so sure but what it might be a good idea. Willamette River water in the summertime is not all that bad.

M.O'R.: Yeah, it sounds like it an idea that ...

A.K.: The Tualatin River water is warm and it does have nutrients. But you know, I was reading something the other day about one of the sewage treatment plants, I think it's the Rock Creek plant, something to the effect that - maybe you mentioned it the other day, that the water was so clean that you could drink it coming out of that sewage treatment plant. I would never recommend that to anyone, but if what they're saying is comparatively speaking as to what it might have been 10 years ago, as to what the quality is today, I know they've made some incredible improvements down there at that Rock Creek plant. It's just awesome what they've done. That's probably correct. It's very high quality, and like I say, I haven't tracked that one, either. I don't know.

I haven't seen any water quality data from the plant, but I have an idea that with the disinfection they have now and the level of treatment, it probably is coming out very well.

M.O'R.: Have you done any work for USA, your firm?

A.K.: No.

M.O'R.: A couple of the principals involved in that lawsuit were a fellow by the name of Jack Churchill ...

A.K.: Oh yeah, yeah. Jack Churchill and Jack Smith.

M.O'R.: Those two, yeah.

A.K.: The two Jacks, yeah. That's been a while back now. That's been probably 20 years ago, hasn't it, when that first started?

M.O'R.: More like 10, I think, or 11, 12, something like.

A.K.: Oh? Well, I know Jack Smith came ...

M.O'R.: '84 or '85 was when they first ...

A.K.: My office was over next to the City Hall. Jack Smith came out one day and we had lunch together, and we talked about the Tualatin River at some length.

M.O'R.: What kind of things was he interested in talking to you about?

A.K.: Oh, we were just talking generally about the studies that I had done for DEQ. But again, I don't remember, it's been so darn long. But yeah, that's right, we did have some conversation. Jack Churchill - I'm just trying to think, we got tied up with him one time, too. Probably just nothing more than just some telephone conversations.

Well, they're the ones that filed that lawsuit, are they not? I mean, Churchill was.

M.O'R.: Yeah, well, Smith was, too, actually. Smith was the head of - I think it was Northwest Environmental Advocates.

A.K.: Right. That's right, that's the name.

M.O'R.: A group of environmental lawyers - he himself, of course, wasn't a lawyer, but he still was president of it around the time that the filed the lawsuit.

A.K.: You know, they're both pretty nice guys. Didn't Churchill work for EPA at one time?

M.O'R.: He did.

A.K.: Regional Director, maybe, in Seattle or something like that?

M.O'R.: Well, that maybe was true, but he worked for years in Washington actually as a bureaucrat there in the EPA system, and he had done some work on getting certain legislation passed, et cetera.

A.K.: Well, the way that law's written, it doesn't take a lot to initiate a lawsuit. You and I could do it almost on the back of an envelope.

M.O'R.: And do you think that's a good or bad thing.

A.K.: Well, I'm not sure, but I suppose it's okay if a fellow uses some judgment. Well, maybe they were just trying to get everybody's attention, which they did.

M.O'R.: Did you have any other dealings with Jack Smith after that lunch?

A.K.: I don't think so. We may have talked on the phone a time or two, but I don't remember that we did. Could have.

M.O'R.: I guess he was later actually hired by USA to advise them.

A.K.: He was. Yeah, you know, that kind of surprised me. I know when that happened, my reaction was, gee, that's kind of like letting the fox in a henhouse, isn't it? But maybe not. But they did hire him, that's right. I'd forgotten that.

M.O'R.: I think he helped them a little bit with the phosphorus problem. I think he felt all along with his engineering background, that there was a way to tackle that problem and a lot of other people were not so sure.

A.K.: Well, I guess you can solve any problem if you want to pump a lot of money into it, but ...

M.O'R.: What's your own view of the phosphorus situation? I know that great improvements have been made at USA.

A.K.: Right.

M.O'R.: And you've just mentioned some yourself. But at the same time, I think that even with the great strides forward, that they're only just barely making the TMDL requirement for phosphorus, or maybe just barely not making it.

A.K.: I haven't seen any data. It'd be kind of interesting.

When I was on the USA advisory commission, we used to get some water quality reports, and it was most impressive at that time, that's been a number of years ago, as to what they were doing. There were a lot of wild schemes coming out like pumping all the sewage over into the Columbia River, you know, and I know it was kind of interesting because I think Gary Krahmer was head of the USA at the time. But he brought that to one of our meetings, and my reaction was, well, wow, what are we going to do about downstream water rights if that's the case, because you are going to be taking an awful lot of water out of the Tualatin River, and there's a lot of people downstream that depend on that water for irrigation and whatever. And there've been some changes in the laws relative to that type of thing, impounding water and pumping it out of the basin, which I can't elaborate on, but it's something you must think about.

M.O'R.: I heard from someone else, though, that there was a plan at one point - maybe you know something about this - to take

the effluent from the Trojan nuclear power plant and pump it over the mountain and dump it into the Tualatin?

A.K.: There was. The cooling water. But of course, they use that huge tower to cool the water. But yeah, there was some plan, but the temperature of that water is quite high. That's again about all I remember on that. There was another plan to put the waste discharge from Forest Grove, Hillsboro, Rock Creek, the plant down at - oh, there's a plant at Tigard - I forget the name of it - put it into a conduit and run it down to the Willamette River.

M.O'R.: The Durham plant, probably.

A.K.: Durham, yeah. And oh, there have been some real interesting schemes come up. They're doing the right thing. They keep upgrading the plants. The Forest Grove plant is being upgraded right now, and it's a regional plant for Forest Grove. Banks pumps its sewage over. Gaston pumps its sewage down. And it all seems to be coming together pretty well.

That was one of the things we recommended in our water quality plans for the state was that they regionalize as many plants as they could. Some places it's almost impossible, but when you go eight or 10 miles to a plant, that's not unreasonable to pump the sewage from Banks down to Forest Grove. The upshot is that you have better management of that water.

Banks has its little sewage treatment plant; Gaston has one. Nobody pays attention to it. They just let them go. And then finally when USA took over, they inherited those plants, and then they began to get better management, and they had people who could that knew sewage treatment. They could go out once a day and check the plant and be sure everything was operating well and so on and so forth, take samples and check the test results and find out that the plant wasn't functioning properly, it was going to need to be upgraded substantially.

Well, heck, why upgrade it? If you're going to spend a million dollars to upgrade it, spend a million dollars and send it down to Forest Grove and treat it properly and get a higher level of treatment with better management.

And so we looked at regionalization, and it was done in a very - oh, just a cursory way. You'd see a region that looked like you have a number of municipalities and treatment plants: regionalize this. All that was telling DEQ was now you better do a serious study here and take a look at the economics and the results that you can obtain. But we didn't have time to do that, but we had time to make a cursory examination and say this looked like a logical area for regionalization, and there were lots of them all over the state, especially in your more metropolitan areas.

M.O'R.: Well, it makes sense.

A.K.: Yeah, it does make sense.

Yeah, there's more to this - there's an awful lot to this whole thing. You know, like we were saying a while ago, it's everybody's problem and everybody's a contributor one way or another, you know, agriculture, forestry, cities. We looked at the waste from recreation facilities, and you'd be amazed at the amount of waste that's being deposited in county parks, state parks, in privies and that sort of thing, and again, if they're too close to a water course eventually some of that could seep in, and so we recommended in some of those cases that they put in - oh, we did this with the water treatment plant up at Carlton for the sewage up there. They have a toilet in the sewage treatment plant. The guy goes up there once a day. It doesn't seem like very much, and whether he even uses the toilet facilities or not, I don't know, but we ran it out to a tank alongside the treatment plant, no septic tank, no drain field, and then when that tank is full, or say, three-quarters full, an alarm light comes on. It means that

it's time for the septic tank company, whatever it is, pumping company down in McMinnville to come up and pump that thing out and dispose of that waste. But it doesn't mean that you're going to discharge it - the treatment plant's right on the banks of Panther Creek, and so let's not take a chance on it, and our feeling was the state parks and the county parks could do the same thing, and it doesn't hurt the employment picture either.

M.O'R.: Another issue of course out here in Washington County that's pretty obvious these days is just the pressure on the whole system caused by rapid development, and of course a lot of that's fueled by the growth of the high tech industry here in the valley. I was wondering if you have any thoughts about the impact of that and what can be done to sort of meet the challenge there.

A.K.: The high tech industry - and take Marix down here as an example. They manufacture circuit boards, a very state-of-the-art high-quality product, and they use an incredible amount of water. All high tech uses a lot of water. They have a state-of-the-art plant that takes the industrial water that goes through, and that industrial waste picks up gold and silver and I don't know what, a number of heavy metals, and puts it through this computerized sophisticated waste treatment plant that separates all that material out and they reuse it, and it's an incredibly expensive thing and it's incredibly expensive to operate and maintain it. But it's the way it ought to be done. We don't want the heavy metals in our own sewage treatment plants because we aren't going to get them out, they're going to go on into the streams, and heavy metals are bad news.

So from that point of view, from the industry itself, I think they're under some pretty tight controls, and I think they're doing a reasonably good job. Now you've got all the people that are coming and you have a population explosion out here. Okay, well,

you tell me what to do. All you can do, I guess, is you just keep doing as we're doing.

You keep expanding sewage treatment plants and construction. You put silt fences up and hay bales and whatever you can to keep the turbidity from getting into the streams and into the storm sewer system. You build more water quality ponds like we're doing. You just keep doing it, and hopefully we're going to contain it and corral it. And Washington County is not letting up. There isn't a project that we do now but what we're looking at a water quality pond for any kind of a residential development or an industrial development or whatever. For every site plan we do, there's a water quality pond in it.

M.O'R.: Now, what is a water quality pond exactly?

A.K.: Okay, there are some criteria that are set up on this thing to - you get certain trade-offs. If you already have some impervious surface on the property before the guy buys it and develops it, you're given credit for that. But all the impervious surface that's on the property that we build has - the water, the run-off from that, the roof on a building, whatever, all has to go down and go through a conveyance system to this pond, and the pond is created with maybe some grass or maybe some cattails. There's several different types of ponds, and those ponds presumably take out the nutrients. They are designed to take out the nutrients and turbidity. Then the water can be released on into the storm sewer system and on down to the Tualatin River.

Yeah, it's a good thing. I complain bitterly every day about it. I don't understand what we're doing, and gosh, I hate to design these things, they're a pain in the neck, but I know that down the line they're working.

M.O'R.: So the input, then, is just a storm drain pipe?

A.K.: Yes. Of course you have two things. You have the storm drainage and you have the domestic sewage that goes with it. It's two separate systems. But I mentioned a while ago that you have a lot of sources of pollution that get into streams. Storm drainage is one, I think urban storm drainage from a water quality point of view has been overlooked for many many years. And when we were doing our water quality studies and we started to get into all of these different things, whatever they might be, sources of pollution, storm drainage of course popped up as being one. And your primary problems with storm drainage, in the wintertime forget it, you're not going to do much with it. But in the summertime, take a day like today, gorgeous, blue sky, you get a thunderstorm that passes over and drops two inches of water on the community. Then it washes everything that's on the streets down into the storm sewer system, into the river.

[end of tape]