ORAL HISTORY INTERVIEWS

TIMOTHY ULRICH

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STATUS OF INTERVIEWS:
OPEN FOR RESEARCH

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Interviews Conducted and Edited by:
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Bureau of Reclamation

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STATEMENT OF DONATION
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TIMOTHY ULRICH

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Editorial Convention

A note on editorial conventions. In the text of these interviews, information in parentheses, ( ), is actually on the tape. Information in brackets, [ ], has been added to the tape either by the editor to clarify meaning or at the request of the interviewee in order to correct, enlarge, or clarify the interview as it was originally spoken. Words have sometimes been struck out by editor or interviewee in order to clarify meaning or eliminate repetition. In the case of strikeouts, that material has been printed at 50% density to aid in reading the interviews but assuring that the struckout material is readable.

The transcriber and editor also have removed some extraneous words such as false starts and repetitions without indicating their removal. The meaning of the interview has not been changed by this editing.

While we attempt to conform to most standard academic rules of usage (see *The Chicago Manual of Style*), we do not conform to those standards in this interview for individual's titles which then would only be capitalized in the text when they are specifically used as a title connected to a name, e.g., "Secretary of the Interior Gale Norton" as opposed to "Gale Norton, the secretary of the interior;" or "Commissioner John Keys" as opposed to "the commissioner, who was John Keys at the time." The convention in the Federal government is to capitalize titles always. Likewise formal titles of acts and offices are capitalized but abbreviated usages are not, e.g., Division of Planning as opposed to "planning;" the Reclamation Projects Authorization and Adjustment Act of 1992, as opposed to "the 1992 act."

The convention with acronyms is that if they are pronounced as a word then they are treated as if they are a word. If they are spelled out by the speaker then they have a hyphen between each letter. An example is the Agency for International Development's acronym: said as a word, it appears as AID but spelled out it appears as A-I-D; another example is the acronym for State Historic Preservation Officer: SHPO when said as a word, but S-H-P-O when spelled out.

Introduction

In 1988, Reclamation began to create a history program. While headquartered in Denver, the history program was developed as a bureau-wide program.

One component of Reclamation's history program is its oral history activity. The primary objectives of Reclamation's oral history activities are: preservation of historical data not normally available through Reclamation records (supplementing already available data on the whole range of Reclamation's history); making the preserved data available to researchers inside and outside Reclamation.

The senior historian of the Bureau of Reclamation developed the oral history program. Questions, comments, and suggestions may be addressed to:

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For additional information about Reclamation's history program see:
www.usbr.gov/history

Oral History Interviews
Timothy Ulrich

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation interviewing Timothy Ulrich, the area manager of the Hoover Dam Office of the Bureau of Reclamation. The interview is taking place in the Regional Offices of the Bureau of Reclamation in Boulder City, Nevada on March 1, 2004, at about one o'clock in the afternoon. This is tape one.

Mr. Ulrich I'd like to ask you where you were born, and raised, and educated, and how you ended up at Reclamation?

Early Training

Ulrich: I was born in Two Rivers, Wisconsin in 1948. And, I enlisted in the Coast Guard, in I think it was January of '69, and served for four years, and was stationed in Boston the last part of my tour. And, I was an electronics tech with them. They had trained me, and, I was looking to advance my education, so I started taking night classes at the University of New Hampshire. And, my chief that I worked for said, "You know, you ought to really study economics because that's what–the world kind of thrives on economics and if you want a really good job you ought to study that." And, so, I took his advice and studied economics at the University of New Hampshire. When I was discharged I had already then completed two years of schooling, so when I was discharged in '73 I was able to get my bachelor's degree in 1975 right at the University of New Hampshire. And while there, I developed and acquaintance, one of the professors that said, "You know, you ought to get a graduate degree." And, so, I thought, "Well, okay." And, he steered me to the University of Nevada at Reno. I went to–under a certain person, a Dr. Cheng [spelling?] who had been at the University of New Hampshire prior to my arriving. So, I was able to get an assistantship at the University of Nevada, Reno for a graduate study in economics. And, actually it was in Ag and Resource Economics.

And so I came out to Reno and finished my degree there, and got a job with Oregon State University, for just a temporary job doing some, some studies, developing some manuals for waste management. And, this was waste management in agriculture, and so it involved figuring out types of waste systems to employ on farms, and what types of tractors and equipment would be required, and figuring out horsepower and all of those things. So, I got to doing that and enjoyed it.

Then a job opening came with Economic Research Service in Washington,

D.C.. So, I applied for it, and I got it. Went to work for the Economic Research Service, which about that time split into the Coopera-, I think it was called the Economics Cooperatives and Statistics Service. They kind of changed, merged a couple of agencies. And, I went to work in the Cooperative Section. And, I really didn't care for Washington, D.C. all that much. So, an opportunity arose to transfer to the, in the same agency but to Oklahoma State University in the Commodity Economics Division. And, I did that. And, while I was there I decided I'd take some courses. So, the government was real, the Economic Research Service is real good about paying for courses as long as it pertained to your field of endeavor, and so I took some economics courses again, and some statistics, and I discovered industrial engineering and I really like industrial engineering. So, I began to take courses in the Industrial Engineering Department. And, I had to, at that time there was some question, "Well, does this course work really pertain to the job?" It so happens industrial engineering is pretty close to production economics so I was able to convince them that I could do that. (Storey: Uh huh.) And, so I completed about, oh I think it's about thirty semester hours of graduate study in industrial engineering, but declared all of those courses as towards a Ph.D. in economics. (Storey: Uh huh.) And, then in 19–let's see that must have been, gosh what was it? It must have been 1984. In 1983, I guess, they, the Economics Research Service said, "You know, we're not going to have field offices any more, and we're transferring everybody to Washington, D.C." Well, I didn't really enjoy my stay in Washington, D.C. the first time, so I didn't think it would get any better the second time, and I decided to take the RIF [Reduction In Force]. It was either you move or you get reduced in force.

And, I took the Reduction In Force and thought, "Well," and I didn't finish my degree there then. So, I went back out to Reno, which I really enjoyed, and started looking for work. And, well, all of a sudden one of my professors from, at University of Nevada Reno said, "You know, there's a guy who is a student here that is looking for an economist to work in the Planning Division. Would you be interested?" Well, at that point I was interested in anything, because I was unemployed and living off of my, the little bit of retirement that I had built up in C-S-R-S [Civil Service Retirement System], to hold me over until I found a job. So, I said, "Yeah, I would be." And I interviewed, and that person was Bob Johnson, who interviewed me. And Bob, at that time, was the chief of the Economic Resources Branch within the Division of Planning here in Boulder City. And, shortly after the interview Bob called and offered me a job in the Planning Division, and I readily accepted, and I moved down to Boulder City from Reno.

Begins Working for the Bureau of Reclamation

And, I worked in Planning, and like I said I really enjoyed industrial engineering and the mathematical and statistics component of things. And so, Bob was real good about assigning me to projects where I could put that to use, and I started planning power projects. (Storey: Uhm-hmm.) So, we had a number of things going on at that time, which one of them was the Spring Canyon Pump Storage Project. Another was the, there was a proposed coal-fired plant in Nevada, at the time, that needed some water, so I worked on that. And, Hoover [Dam] modification was going on. And, so all of these things were power related and I started doing those studies and got interested in power, the power component to Reclamation. And, eventually a spot opened up in the Power Resources Office in Reclamation, and so I applied for it and I got it. Actually, I don't think I had to apply. I think I took a lateral, come to think of it. And, so I moved over to Power Resources as an operations research analyst. And, I did that for just a short while, and the branch chief opened up there. So, I applied for the branch chief's job for Power Resources, and it so happens Bob Johnson was the chief of Water Lands and Power Division, and so he interviewed me and hired me for that position.

Moving Up Through Reclamation

So, I got the chief of Power Resources and I stayed in it for, oh I think it was three or four years. And, then the Area Office position, at that time it was called a special assistant position, in California opened up, and it was a chance for a promotion. And so, I applied for that and eventually was offered that position in Temecula, California. And, that was about in, I think, summer of '92. (Storey: Uhm-hmm.) And, so I moved to the Temecula office and, as special assistant for this field office that was to promote water reclamation and reuse. And, so I started working with Southern California entities in trying to get some programs going, and I was really lucky because about that time they passed, as part of the Appropriations Bill, I think it was in that year–it was, think it was 102-575, but I don't remember. Public Law 102-575 I think was the law, but I could be mistaken. Anyway that bill had a provision in there for Reclamation to assist Southern California water agencies in doing reuse, and they actually offered funding for that. Well, that really made the office take off, and so it was just kind of fortuitous that I was there. And, all of a sudden we went from about a million dollar budget to a, by the time I left we were at over $20 million, because of the construction projects that were being funded out of that office. And, I really had some good relationships with the water users, and so one day–well, I think it was in either late January or early February, Bob Johnson, who had then become regional director, called and said that Blaine Hamann wanted to move up to the Regional Office. He was the manager at Hoover Dam at the–the Lower Colorado Dams. And, Bob needed someone to kind of head up the power

program in the Region, and so he was going to move Blaine up, and he was wondering if I'd be interested in going down to Hoover and seeing if I could improve the customer relations there, since I had done a fairly good job with the customers in Southern California. And, that's how I came to be the area manager for the Lower Colorado Dams. I said, "Absolutely." I mean, who would pass up the chance to go to Hoover Dam as a Reclamation employee? I can't imagine anyone saying no. So, I did, and from there I guess it's kind of history. I'm still there, and hopefully I will make it through my career there. (Storey: Uhm-hmm.) (Laugh)

Storey: Yeah, you were up here for a while?

Ulrich: Right. Right. I, you mean after I came to Hoover? Or before?

Storey: After Bill Rinne moved to Washington.

Ulrich: Right. Right. There was, yes, I was asked to come up and–well I was, first of all I was asked if I'd be interested in moving up here and I said, "No. I didn't think so. But I really would like the chance to sit in the position for a little while." And, and so Bob said, "Yeah, come on up and we'll detail you for a few months and see if you like it." And, since it was a lateral I could do that real easily. And I did, and I stayed much longer than what I had envisioned. But, I can't remember how long it was, but it just didn't compare to the work at Hoover. So. (Storey: Uhm-hmm.) Actually, Hoover, Davis, and Parker, and so I said, "You know, I think I found my niche and this isn't it," and asked if I could go back to my position at Lower Colorado Dams, and Bob was good enough to do that. So, that was my short, short stint in the regional office as the assistant regional director. (Laugh)

Storey: That was maybe six months?

Ulrich: It must, it probably was around six months or so. (Storey: Uhm-hmm.) It was supposed to be three, and I think it went to about six. I can't remember the dates, but that's probably close.

Storey: Hmm. Okay. Good.

Ulrich: I went way beyond where I was born and . . .(Laugh)

Storey: No. That's fine. It doesn't matter. Most people do. When I did Dan Beard. I asked him the one question and he talked exactly two hours. He ended exactly on the day, you know, when, when (Ulrich: Wow.) when we were talking. And he said, "Well,

that's taken care of, I guess." And I said, "Well, I do have a few questions." (Laughter) And, we did two hour interviews every six months for the rest of his stay at Reclamation. (Laughter) Let's go back, though.

Ulrich: Sure.

Storey: So, you got out of high school, basically, and went into the Coast Guard?

Experience in the Coast Guard

Ulrich: Yeah. I did a, I did go to school for about a year first, to college. (Storey: Uhm-hmm.) And, I still didn't know what I wanted to do. I was just kind of going to school because I didn't know what I wanted to do. (Storey: Uhm-hmm.) And I didn't do very well, frankly. I mean I carried, I think, my first semester I carried like a 2.2 grade point, and my next one I dropped to like a 1.6. And so I decided, you know, "I'm not ready to do that," and so I thought, "I'll go into a technical trade." My family was all blue-collar. My grandfathers, my grandfather was a tool and die maker, and my dad was an electrician, and my other grandfather was a farmer and, and carpenter. And, so I thought, "That's more my niche." So I went, transferred out of the four-year school into a two-year. And, I did that for a semester, and I did enjoy that. I took electronics, but then the, at that time, that was in 1960, let's see, that would have been in 1968. No. Yeah, '68. (Storey: Uhm-hmm.) And, at that time the Vietnam War was going pretty heavy and they were looking for people. And, you only got a 2S at, a deferred, a deferment called a 2S which kept you out of the service.

Storey: A student deferment?

Ulrich: Student deferment. If you met certain criteria. (Storey: Uhm-hmm.) I mean you had to be advancing to the completion of a degree. (Storey: Yeah.) And, when I started, and I enrolled in a four-year institution, and then re-enrolled in a two-year, to the draft board that was no longer pursuing the degree that I started with. (Storey: Yeah.) So, in their eyes I was not eligible for a student deferment anymore. So, so then I was eligible for the draft and I was, got my notice, and I went to Milwaukee, Wisconsin for my draft physical. And, along with everybody else. Buses going to Milwaukee for physicals and everything. I spent a whole day there and decided, "You know, if I'm going to get, go into the service, I ought to really go into something I want to do." So, I looked into the Navy Reserves, and they didn't have any, any openings. They were, had a waiting list. Everybody wanted to go into either the Navy or the Air Force. So, those branches were full. And, I don't know what made me think of the Coast Guard. We had a Coast Guard office in my hometown. It was right on Lake

Michigan, so I thought, "Oh, that wouldn't be too bad." (Storey: Uhm-hmm.) So, I went to the Coast Guard recruiter and he said, "Yeah. We've got openings and you can go anytime you want." This was in December. So, I said, "Well, gee, I think I'd like to go after, after Christmas." So he scheduled me in for January, and January 26, I think it was, off I went to (Storey: Uhm-hmm.) boot camp in the Coast Guard.

Storey: Where was that?

Ulrich: Cape May, New Jersey, for–they had two boot camps. One was at Cape May, New Jersey and one was in Alameda, California, and, they sent me to Cape May.

Storey: And, how did you decide to go into electronics? Were there any choices there, or how did that work?

Ulrich: Actually, there, when I went into the Coast Guard they gave me a test. They gave everybody a test, everybody that went in you get this aptitude test. And then they, they come back with some potential schools that they think, based on your aptitude, you would be happy doing. And, when mine came back I think I had, oh there were always three or four things that they came back with, and in my case one was electronics, one was electrician as I recall, and I think one was a quartermaster. I can't remember for sure, but, I didn't even know what quartermaster was so I didn't, I ruled that one out right away. (Storey: Yeah.) (Laugh)

And, of course, as I said I started studying electronics, and I always, my dad being an electrician had stuff laying around the house that I was always playing with and stuff. So, I thought, "Well, I might as well pursue, continue pursuing that." And so, I elected the electronics thing. (Storey: Uhm-hmm.) They sent me to school then for electronics. And then, they said, "If you work really hard, and you make it into the top of your class, the number one in the class gets first choice of billet." So, I don't know how many were in the class, but probably about thirty. And so, I thought, "Well, you know, I want to get out to the West Coast so I'm going to work really hard and try to get number one in my class." So, I did. I mean, I studied. And most people at that time they're not studying or anything, you know, they're just, they have to be there. So, I had a little bit of an edge up. If you're willing to study you have a little bit of an edge up trying to get to be number one. And, turned out I didn't get number one. I got number three. And so when the billets came out I looked at the listing and there were four, four locations in California. So I thought, "Well, I didn't get number one but by golly I got where I wanted to anyway." So, I was all set to take the, I think it was in Terminal Island, California. I was all set to sign that and they came in one day and they said, "You know, we really need communications technicians in the

Coast Guard, and so we're taking the top five people out of the class and we're sending them on to, to. . ."

Storey: More school?

Ulrich: More school. So, here I, oh man I worked and worked to get this. I mean, I really wanted to be number one, but I got to where I wanted to go, and now they politely said, "Well, we've decided something else for you." And, there wasn't an option. I mean, it wasn't like, "Do you want to do this?" It was, "Here's where you're going." The good thing about it was, the school was at Mare Island Naval Shipyard outside of San Francisco. So, at least I was (Storey: In Vallejo?) going to the West Coast–in Vallejo. So, at least I was going to the West Coast for a while. So, I got into the, what is really crypto school. They call it communications in the Coast Guard, but in the Navy it was cryptographic school. And, I had learned my lesson about trying to be number one in the class. So I thought, "Hey. I'm just going to skate along here and take what comes, and, even if I have to take a ship off of the West Coast I'd be happy as heck." So, I made it through the schools, not even close to number one in the class. And, so I thought, "Well, when the billets come out I'm going to try and get a ship off of, off of either California, Oregon, or Washington." And, gee they didn't even come out with a billet saying, "Here are your choices." They just handed me my papers and say, said, "You're going to Boston, Massachusetts in the regional headquarters." So, again, I didn't get a choice but I went off to Boston. Of course, that's how I started going to school in New Hampshire and stuff. So, I mean it all worked out really well, but I sure, it sure wasn't the courses that I had planned.

Storey: Let's see, the University of New Hampshire is where?

Attended the University of New Hampshire

Ulrich: Is in Durham, which is a little over fifty miles from Boston. And, when I was in the Coast Guard there, of course I was an E-4 when I got there. And, E-4s at that time, and actually I think today probably still don't make very much money. (Storey: Uhm-hmm.) And, I was, I was married. So, I couldn't find anyplace to live close enough to, that I could afford, and I couldn't live on base because it, that's based on rank and rating, and I was too low on the totem pole to get that. So, I had to live in Newburyport, Massachusetts, which was about forty-five miles outside of Boston, and commute every day. (Storey: Uhm-hmm.) Well, fortunately there were a lot of folks doing that and it was easy for me to find a car pool to get in there. And, so I was about forty-five miles from Boston, but I was also only about, well, I guess it was fifteen miles or so to Durham, New Hampshire. And, and then we found a place

called Exeter, New Hampshire, which is one of the, one of the Coast Guardsmen that I was commuting with lived in Exeter and actually stopped at Newburyport to pick me up. So, I eventually moved to Exeter and then I could get in-state tuition at the University of New Hampshire. (Storey: Uhm-hmm.) So, I mean that's how, it's funny how things . . .

Storey: How it works out?

Ulrich: Things happen that way.

Storey: Before we go on (Ulrich: Yeah.) is Two Rivers a rural town?

Ulrich: It's, well it's a town of, at that, when I graduated it was 12,393 people. And, I think today it's 12,700 and some, and for a while it dipped down below 12,000.

Storey: But, you weren't raised on a farm?

Early Life in Two Rivers

Ulrich: I was not raised on a farm, per se. I was, I lived with my grandparents on a farm for my early, very early years, from oh gosh, up until I was, I don't know, about five years old, or so, or six years old. And then, my parents built a house on the farm, but down the road a ways. (Storey: Uhm-hmm.) So, my grandfather had split off an acre for my parents and they built there. And so then I lived a quarter of a mile away. And, I went to a one-room school, you know, out in the country there. So, up until the fourth grade. And then we moved to a small community, because my dad was working for the telephone company at the time. And, so we moved about sixty miles away. (Storey: Uhm-hmm.) And then we moved into town. And, that was my first time living in town, that I could remember. I guess when I was born we lived in town but (Storey: Yeah.) I have no recollection of that. So.

Storey: You felt you fit into economics, huh?

Interest in Economics

Ulrich: Yeah. It was something that came very easy to me. It's really common sense stuff and so it was real, it was like I didn't have to think too much about things. It just, that's the way I think anyway. So, it was an easy subject for me. And, I liked, I liked math too. And so, economics has a lot of math in it, so it just fit for me really well.

Storey: How did you start specializing?

Ulrich: Well, I guess, in economics you mean? Start specializing in (Storey: Yes.) production? Because economics is a social science, and there's kind of two, two tracts in economics. One is a real normative approach, where it's qualitative and, qualitative analytically, and then there's the, what they call "positive economics," which just relies on statistics, and you don't impose value judgments and stuff. And since I was, you know, had an interest in mathematics, statistics falls right in that line. And so I kind of took that approach of a positive economist, and I started taking mathematical economics and statistics as my electives within the, within the economic (Storey: Uhm-hmm.) curriculum. And, and then that falls right into, I mean industrial engineering is very much like that. It's mathematical programming. And, so I started, just took a course in that department at Oklahoma State, and discovered, "Wow. I really like that even better than economics." And, frankly, I would have switched and thought about it, but I couldn't get anybody to pay.

END SIDE 1, TAPE 1. MARCH 1, 2004.
BEGIN SIDE 2, TAPE 1. MARCH 1, 2004.

Storey: So, tell me more about the, your job with Oregon State University, your temporary job.

Working for the Economic Research Service

Ulrich: Uhm-hmm. Yeah, it was with the Economic Research Service that kind of gave the money to Oregon State to do some of this (Storey: Uhm-hmm.) stuff. And so, even though I was working directly for Oregon State University–my title was, I think, was research associate. And the contract that I was working on was for the Economic Research Service, and it was to develop these waste management manuals that would help extension agents and, at that time I think they were called 208 Planners. The E-P-A {Environmental Protection Agency] had a, it must have been some section of a public law or something, Section 208, and they called them 208 Planners. (Storey: Uhm-hmm.) And, they were looking for manuals on how to evaluate if farmers should implement certain waste management practices for livestock. And, so it was a matter of how do you collect the animal waste, how do you store it, and then how do you dispose of it? And, so my job was to develop this manual on the different types of, different types of waste management for animal agriculture. And, in doing that, a lot of it was, if you're going to figure out the storage and stuff you were using, when you had to figure out volumes and things like that, and then how are you going to dispose of it, and what kind of equipment would be required, and how much horse

power would be required to do that, and then how would that translate back into the energy sector, and that kind of stuff. So. It's been a long time so I haven't thought about this in a while, but it was fun. It was, you know, kind of putting together tables of implements and horsepower requirements and stuff. It was a lot of fun to do.

Storey: So, what kinds of alternatives were you coming up with?

Ulrich: Well, it was looking at whether it should be a slurry-type system, so you'd have ponds versus a solid system where you're trying to evaporate out the liquid portion and then store it as a solid, and then dispose of it as a solid. And, so you're really kind of, and a lot of it depended on where you're, where the farm location would be. If you were near a stream and stuff, well then you'd have to be able to inject the waste, because you don't want it running off into, into the stream. (Storey: Uhm-hmm.) So, the thought at that time was, if you inject then you won't have, have any runoff. And, to inject of course, you have to have liquid. So that, that would lead you to putting in some kind of a liquid system. Then you'd have to figure out, okay, how big of a pond would you need, and what kind of linings it would take, and those types of things. And then, what equipment are you going to use to inject? And if it were, if you weren't near a stream, then the most economical, as I recall, was the solid system, which farmer's used for years. I mean they, when I was a kid on my grandparent's farm, I mean that's what we had. And, it was just, you just had a manure pile. (Storey: Uhm-hmm.) And, you let that build up until spring came, and then you loaded it on a spreader and you spread it across your fields, and that would be your nutrients for, for the crops that you were going to plant. So, and that's fine if you're not anywhere near a, near a stream. You don't have the runoff problem and stuff. And, that's a real efficient way of doing things. So, this was kind of just playing with all of those things and trying to figure out how to best use the . . .

Storey: Is that you or me?

Ulrich: I don't think it's me.

Storey: It must be in my briefcase.

Ulrich: Oh. (Laugh)

Storey: Ignore it. (Laugh)

Ulrich: So. So anyway. That's kind of what, what it was.

Storey: So, then this, let's see, if I'm recalling there was a job in D.C., and that came to your attention because you were already really working for the Economic Research Service?

Ulrich: Right. Right. I was working for Oregon State, but it was a contract with the Economic Research Service, and there was a, it was a gentleman that I was working for at Oregon State that really was a E-R-S, Economic Research Service, employee. And, that was Jack Treewyler [spelling?]. And, so all of the job announcements came through for these federal jobs, so I was always seeing these. So, when one opened, or I saw one in Washington, D.C., I thought, "Well, that's worth a try." And, I was fortunate enough to get that. But, like I said, I didn't really enjoy it that much when it got to the area. I liked the area in terms of the culture and stuff. I mean it was, and my wife just loved it, but I didn't like, I had to live, again I was, I was, at that time I went there as a GS-11, Step 1. And, in Washington, D.C. at the time, well I mean even today, you can't live on a GS-11, Step 1 close to the district, not with a family, I mean. And, so, so I ended up moving to Fredericksburg, Virginia and an commuting in. Well, that was a fifty-mile commute again, which I had done in the Coast Guard. For a short period that's okay. Well, I did that for nearly a year and decided, "My God. I'm spending as much time commuting as. . .," it was like an hour and a half each way, even though it was only fifty miles, because of the traffic. It's an hour and a half each way. So, I'm adding three hours to my day just commuting. And then because I was in a pool, I was the first one dropped off in the morning, because I was at Department of Agriculture, and the last one picked up in the evening before coming back. So, I was dropped off about an hour and a half, or that added another hour and half. So, I'm adding about four and a half hours to my day just by living out in (Storey: Uhm-hmm.) Fredericksburg. And, I just did not enjoy that part of it. It was fun working in Washington, but that, that commute was not for me. I didn't care for that at all. And, having, you know, I was used to the East Coast, obviously, because I was in New Hampshire in the Coast Guard, but then I moved, moved to the West again and I just, the East is so, oh I don't know. It's so close. It's, it's just, there are any vistas really. You just feel, at least I felt really closed in (Storey: Uhm-hmm.) every time I lived there. So, I just felt better every time I came out West.

Storey: Where were you working?

Ulrich: In D.C.?

Storey: Yeah.

Ulrich: It was in, at that time, the Economic Research Service was in the–what did they call

it? It was where the Blue Cross/Blue Shield Office was, right after the Fourteenth Street Bridge, I think. It wasn't in the Ag, the Department of Ag main building. (Storey: Uhm-hmm.) But, it was about two blocks away, and it was right after you came across, I think it's the Fourteenth Street Bridge. And, so that's where I was in that.

Storey: On the south side of the mall there?

Ulrich: Yes. Yes. Yeah. (Storey: Uh huh.) It'd be the southwest side of the mall.

Storey: Uh huh.

Ulrich: Right.

Storey: And what were you doing?

Ulrich: That job was in the agricultural sector again, but it was a Cooperative. It was with the Cooperative part of Economic Research Service, and it was trying to site slaughter plants. So, different cooperatives from around the United States could come and get assistance in planning for siting their slaughter plants. And so I worked on that for a while. And, in fact, I came out to Arizona to work with the, I forgot what the name of that cooperative was but it was trying to figure out if they could justify a hog slaughter facility in Arizona. And so, my job was just to kind of put the details together of how many animals were produced, how that would convert into dressed, dressed material, and could you have a plant that size where the collection of the animals was close enough where you didn't lose, you didn't have a huge transportation cost and stuff. And then, how do you market the stuff. I do remember I put the report together and I truthfully can't remember what the result was, but shortly after I went, took a transfer to Oklahoma, and so I guess that was not a, was not a highlight of my (Laugh) of my life. I just can't remember very much of it.

Storey: Uhm-hmm. And then you went to Stillwater?

Ulrich: Yes. Yes. I went to Stillwater. And then I was working in the Commodity Economic, I think it was called Commodity Economics Division of the Economic Research Service, and it was developing the budgets for the crops and livestock that would determine what the loan, when the federal programs would guarantee prices and loans and stuff, they used these budgets to do, to make those determinations and how much they were going to give or something. So, my job there was to put together budgets for, again for livestock. I seem to get caught in the livestock side of things.

And, so it was just developing budgets for cattle, and hogs.

Storey: Well, this would be based on what you thought it would cost them to raise it?

Ulrich: Right.

Storey: And what you felt would be a fair return, or . . .?

Ulrich: Yeah. You would, you would, we would actually survey the entire U.S. and we would, every, I think it was every year or every other year, I can't remember for sure, but we were always doing a survey every year whether we hit each one every year or just every other I can't remember. But, we would survey farmers as to what their practice, production practices, were. So, one of the things, since I was on the livestock side of things, I was interviewing ranchers about, for instance, how many cows per acre they would normally run, how many cows per bull, whether they used artificial insemination or natural methods with a bull, and then what their calving rates were, what the feeding practices were, and try to develop and entire budget that would say, "Here's the cost of producing a hundred pounds of beef, or a hundred pounds of pork." And, so that's kind of what we did. We did a survey every single year. So, we got to go out and survey farmers and things. And, I enjoyed that part of the job too.

Storey: And you did it locally?

Ulrich: No, it was, it was, the center for this particular, it was called a Firm Enterprise Data System, and the center for that was Oklahoma, at Stillwater. (Storey: Uh huh.) The university there developed a cooperative agreement with the Economic Research Service that they would provide the office space and any research staff that might be required to help with this program. And, and then in turn anything that we published related to that would also have the Oklahoma State University stamp on it so it'd be, they'd get credit for doing part of that research. So, it was a pretty good relationship between the universities and the feds. (Storey: Uhm-hmm.) Somewhere along the line the Economic Research Service decided that it would be better if they did everything from Washington, D.C., and so they did away with all of the field offices. Now, we were the Firm Enterprise Data System. There were other field offices throughout the United States at the time, with the Economic Research Service, having different targets of what they were doing. But, everybody was transferred into D.C., and about that, I think we were notified in '83. And, they were really good about giving us enough time to find something. And so, it was in '84 that I came to Reclamation.

Storey: So, you would have been going out nationwide doing these surveys? (Ulrich: Uhm-hmm.) Is that what I'm hearing?

Ulrich: Uhm-hmm.

Storey: So, you might have gone to Oregon, or Massachusetts, or whatever?

Ulrich: Right. Uhm-hmm.

Storey: Okay.

Ulrich: Yeah. [I] Went all over.

Storey: And this was in the '80s, so transportation was no problem, you just got on the plane?

Ulrich: Yeah.

Storey: Where did you go to fly?

Ulrich: We went, we mostly flew out of Tulsa, but every once in a while we'd fly out of Oklahoma City. Stillwater's pretty, going to Oklahoma City or Tulsa is pretty much a toss up. (Storey: Uhm-hmm.) And, but I think we used Tulsa a little more. And, I don't even remember why that was, but it seemed to be I flew out of, I remember flying out of Tulsa more than Oklahoma City. (Storey: Uhm-hmm.) So. But it was fun, fun experience.

Storey: And, so when you went back to Reno, did you take more courses?

Finds a Job with Reclamation

Ulrich: No. No, I went back to Reno–they didn't have any program that I could take anymore than I already had. They didn't have a Ph.D. program. They didn't have any industrial–and I didn't even know about industrial engineering at the time. So, so, oh wait a minute. I'm sorry. That was, you're talking about after I left the Economic . . .

Storey: After you, yes.

Ulrich: No. I went to Reno just to find a job. I wasn't looking for going to school anymore. I was just looking.

Storey: So, who was it put you on to Bob Johnson, and Reclamation?

Ulrich: Oh it was, it was some friends at the university who, a former professor that I had there. (Storey: Uh huh.) Because I did, you know, I'd went back to the university to just say hello and let them know that I was in the job market, if they heard of anything. And, one of them said, said that–and I didn't know Bob Johnson at the time. Bob had gone through the same program I had at the University of Nevada, Reno, but he graduated just as I was coming in, so we never really crossed, crossed paths, but we know a lot of the same people. (Storey: Uhm-hmm.) So.

Storey: So, you came down here for an interview.

Ulrich: Actually, Bob came up to Reno. I was living there and he had called and asked if I was interested, and I said, "Yeah." So, he said, "Well, I'm going to be in the area interviewing." Scheduled a time and we interviewed, and I talked, and shortly after he called and said he was offering me the job if I was interested.

Storey: And then you moved down here.

Ulrich: Then I moved down here, right. And, for Northern Nevada, now granted I wasn't in Northern Nevada very long, but going through school there and then coming back to Northern Nevada there's this, there's this division in the state. And, I don't think it's as true for the Southern Nevadans, but the Northern Nevadans don't like to think that Southern Nevada is part of the state. (Storey: Uhm-hmm.) And, so normally, I would have probably said, "No," but I had been unemployed for about, oh probably six, eight weeks already. And, for me, I had never been unemployed before in my life so it was one of those things, "Gosh, I got to find a job." And, so I did. I said, "Yeah. I'd be happy to," and came down, and I found that it was, you know, Southern Nevada's a nice place. (Storey: Uhm-hmm.) (Laugh)

Storey: Different than Reno, that's for sure.

Ulrich: It's different than Reno. And, now, I do prefer Reno but there just weren't any jobs there.

Storey: Uhm-hmm. So, what does an economist do in Planning, in Reclamation? Tell me more about Spring Canyon, (Ulrich: Alright.) and these various other projects.

Economists Role with Reclamation: Spring Canyon Project

Ulrich: Well, normally the economist is there to figure out whether the project is going to be, number one is it justified with a, usually some kind of a benefit/cost ratio. And then, secondly, if it is how is it going to get paid back? And, so that was my job, is figuring out, first of all is, what's the benefit/cost ratios on the projects? And, in doing that, you put together again, you know, cost estimates for producing different, whatever you're producing. And, a lot of economists for Reclamation worked on crop budgets, and livestock budgets. And, of course, that was my background in the Economic Research Service. And so, so you would think I would have gone and stayed in the agricultural side of things, but like I said a little bit along the path there I discovered industrial engineering and I really liked, liked that aspect of it. And, so when these power programs, power projects, came up, like Spring Canyon, I was fortunate enough that Bob assigned me to those jobs as opposed to some of the agricultural aspects. And so I was able to kind of leap out of that for a little bit, and it turned out permanent. (Storey: Uhm-hmm.)

So, the Spring Canyon Project was going to be a huge pump storage project that was going to, was looking at siting a plant in the upper reaches of Lake Mead, and it was going to be a, had the potential of a 4,000 megawatt pump storage facility. Pump storage being, it's not gonna, it's going to be an energy consumer, but it's going to help move power from the time it's not needed to the time it is needed. And, electricity's hard to store. So, when they run steamers, steam plants, they don't want to be shutting those things down and starting them up. So, they like to run them at the most efficient point, at a high efficient point on the curve. To do that they have to be able to send the power someplace, I mean it can't just dissipate. So, one of the things that can be done is you can pump water, put this electricity to use pumping water when it's not required other places. And, then if you store that water in a place where you can release it and generate power, then you can generate when more electricity is required. So, what you're doing is you're really shifting the production to more fit the needs of the end users. And so that was, that was a huge project and I got really heavily involved in that into the, even the details of how to operate. And so I started building, building databases and spreadsheets on how to operate the facility. And, in doing that, that set the tone for the design, because how you operate is going to determine how you size the units, and how many units you need, and those types of things, and how big your reservoir has to be, and those types of things. So, that was probably my biggest, my biggest project.

Storey: Now, Arizona or Nevada side?

Ulrich: It was on the Arizona side, in the Lake Mead National Recreation Area. And, frankly, at that time, I remember the justification that I did came in just barely justified. That

is, the benefit/cost ratio was like about, I'm guessing here at my recollection, but I think it was like 1.1 or 1.2:1. So, it wasn't any great magnitude of benefit/cost ratio. And so it was justified but it wasn't hugely justified. And there were, at that time, I think, about twenty entities, and this is a guess. (Storey: Uhm-hmm.) But, there were about twenty entities that were involved in the planning of this that wanted a portion of Spring Canyon, if it were built. And, those entities, I can remember, one was Southern California Edison, one was Salt River Project, and then there were some small Indian, Indian tribes that wanted some. And, I can remember the smallest unit, I think, was one megawatt, and the largest was 400. So you had some entities that would want 400 megawatts and other entities that would only want one megawatt.

Well, you can imagine the conflict of the people involved in trying to make decisions when you've got people at the table who, who are ranging from one megawatt in size to 400 megawatts in size, and how that all transpired. And what happened, as I recall, is, because the project was barely justified, and there were so many of these entities trying to do this, and of such disparate size, that they just lost interest and that project never went forward. So, it's still on the planning books as a potential. Every once in a while you hear about it, or somebody is thinking, "Oh, maybe we ought to look at that again." Last time was during the California deregulation when energy prices skyrocketed for a while, and it wasn't unheard of to hear of a couple hundred dollars per megawatt hour. And, of course, at those rates that's when you can really justify these pump storage projects. So, for a while people started, "Maybe we ought to be revisiting." Of course, by the time you get around to putting all the things in place to study, the market came back down and people said, "Well, maybe there's not a crisis after all." (Storey: Uhm-hmm.) So.

Storey: Now, when was it you came to Reclamation?

Ulrich: It, excuse me, it was in '84.

Storey: What part of the year? Do you remember?

Ulrich: It was the latter part of the year. It would have been around November or so of '84.

Storey: And Bob Johnson was, what, a division chief?

Ulrich: At that time he was a branch chief.

Storey: Branch chief?

Ulrich: Right. So, I was really lucky in that, you know, Bob kind of advanced in different places and it seemed where he went there was always a, not always, but positions opened up and I was able to kind of follow him around. And, he just hired me a number of times. (Storey: Uhm-hmm.) (Laugh)

Storey: What about, you talked about a coal-fired plant?

Planning Other Projects

Ulrich: Yeah. There was one plant in Southern Nevada here, and I'm trying to think of the name of that, I think it was called, I think it was called the Harry Allen Plant. And, they wanted, they wanted a cooling water supply. And so, I think they were going to locate on that I-15 corridor between, between St. George and Las Vegas, and so they were looking for water supply to, for their cooling system. And, I got involved in the economic side of doing that. I have to say that of all the planning projects that I did, only one ever did come to fruition, and that was the Lower Colorado Water Supply Study.[1] It was the putting in some wells in Needles, and I was the economist on that. And, I think that was the only one that I worked on that actually, they actually did build. (Storey: Uhm-hmm.) So, I don't have a very good track record in terms of successful projects here, but I think that was just kind of a sign of the times. Not a lot of things . . .

Storey: Well, this has always been true of Reclamation. We've always studied a lot more projects than we ever implemented.

Ulrich: Yeah.

Storey: As opposed to the environmental vision of us going out and building dams everywhere willy nilly, you know. (Ulrich: Yeah.) That never happened. (Laugh)

Ulrich: Yeah.

Storey: Let's see, Hoover Modification. What was that about?

Ulrich: Well, that one we were looking at putting in. . .

1. For more information on the Lower Colorado Water Supply Study, see "Lower Colorado Water Supply Act," November 14, 1986, in United States Department of the Interior, Bureau of Reclamation, *Federal Reclamation and Related Laws Annotated (Preliminary)*, Volume V of Five Volumes, 1983-1998, Donald L. Walker, editor (Denver, Colorado: United States Government Printing Office, 2001), 3528-31.

Storey: Well, I'm sorry. Maybe we ought to talk about the coal-fired plant more. Where was the water going to come from?

Ulrich: It was going to come from Lake Mead.

Storey: That would have been part of Nevada's allocation then?

Ulrich: Right. Right. And so it was looking at a pipeline, at bringing water to this coal-fired plant, and, and I don't remember a lot of details of that one.

Storey: Why would we care about the economics? Why didn't we just sell them water? Or contract them water?

END SIDE 2, TAPE 1. MARCH 1, 2004.
BEGIN SIDE 1, TAPE 2. MARCH 1, 2004.

Storey: This is tape two of an interview by Brit Storey with Timothy Ulrich on March 1, 2004.

Anyway?

Coal-Fired Plant in Southern Nevada

Ulrich: Yeah. Well, that's a good question, and I can't remember the details but anytime we undertake a project we want, because there's going to be federal resources at stake, whether it even be crossing federal lands or being financed by federal dollars, or anything of that nature, there's a federal interest. And so you always want to make sure that a project has a good likelihood of succeeding before you're going to put any public resources at risk. So, we always have an interest, kind of like a banker, you know. What do they care whether you're successful in completing your house or not? Well, they care because their dollars are somewhat at risk by your completion, and it's the same thing with Reclamation. Anytime, or any federal agency. Anytime your resources are being used, even if it's only a matter of running something across your land, you want to make sure it's a project that's successful. You don't want to have anything sitting there that isn't being used and affected the public's resources.

Storey: Hmm. Okay. Well then let's move on to the Hoover Modification.

Hoover Modification

Ulrich: Okay. Well, the Hoover Modification was looking again at expanding the capacity at Hoover, and it was looking at putting two more generating units on the end of a penstock, an underground–I'm sorry, Spring Canyon was the underground powerhouse. Hoover Mod was looking at putting, I think it was two 250 megawatt units at the end of I think it was the Arizona penstock, and it would just increase the capacity of the plant some more. That one never did, we didn't go very far on that one, and this was the second time it was looked at already. One thing that probably influenced its failure, so to speak, is they already were doing the upgrading at Hoover, and so they were going from 1300 megawatts to the 2080 that we now have just by rewinding the units, the generating units. And, this would add another 500 megawatts. Well, even going to 2000, if you think about how often we use the generating units, right now we're running about a, anywhere between twenty-five percent and thirty percent capacity factor. Meaning that, if we were to run our units at capacity we would be out of the allocated water for the month in about nine days. And so if you add capacity to that, your capacity factor's going to go down even further. And, so you're really becoming more and more of a peaking facility, and we're already a peaking facility, and so the more you narrow that the less differential you pick up between the price of off-peak versus the price of peak. So, as the shoulders come in that differential starts decreasing, so it's harder and harder to justify once you get down into a really low capacity factor. (Storey: Uhm-hmm.) And, so that's kind of what killed Hoover Mod, in my opinion. So that one never materialized either.

Storey: Hmm. How does rewinding increase capacity?

Ulrich: Rewinding, in this case, the insulation materials have improved so much since Hoover was originally constructed. And in the late '80s, (Storey: Uhm-hmm.) that in the same amount of space you can, you can, put less insulation material which allows you then to put more copper. And, of course the more copper you have the more power you're going to be able to generate. So, it's just by the improvement and insulation material that they're able to pick up that.

Storey: When you rewind, you've got more copper in there, huh?

Ulrich: Right. Right.

Storey: Okay.

Ulrich: Yeah. So that's how they were able to do that. (Storey: Hmm.) And that was a very successful project.

Storey: That's fairly recent?

Ulrich: Yeah, they rewound–I think the first unit was rewound in about '85, and they completed it in I think it was '91. So, during that time frame. And, I think most of it was between '87 and '91, but again I don't remember any exact details there.

Storey: Let's talk a little more about the relationship of water to power here.

Ulrich: Uhm-hmm.

Storey: As I understand it, Western [Western Area Power Administration, or WAPA] tells us when to generate and when not to generate?

Relationship to Power Production and Water

Ulrich: That's true. They, they're the ones who are directly electrically hooked to the customers. And, the way we operate now is Western sends a dynamic signal to us, at Hoover. That's just one, one point that says, "Here's how much energy we want at this particular instant in time, and this is how much capacity we want at this particular instant in time." And, so then it's up to us at the plant to determine how we're going to provide that, whether we're going to provide it from all the units, or whether we're going to provide it by a subset of units, and which subset we're going to use, and things like that. So, they tell us, here's what we need, and we figure out the best way of providing that. And, the way we do that is we try to pick the units that are most efficient for any given request. And, in that way we'll use the least amount of water to get the amount of generation. Or, to put it, I guess, differently, for the amount of water we're going to release, we're going to get the most amount of power out of it.

Storey: Uhm-hmm. But how do we coordinate the water needs downstream with the power needs that Western is calling for?

Ulrich: Okay.

Storey: Two different (Ulrich: Yeah.) things? I can see (Ulrich: Right.) some tugging and pushing (Ulrich: Right.) going on. (Laugh)

Ulrich: Right. It's actually not as bad as what it sounds, because first of all the water releases are based on putting water to beneficial use. We never release water just for the sake of generating power. That's number one. We never do that. Water is a first priority, and in the West you can't release water for, unless it can be put to beneficial

consumptive use. (Storey: Uhm-hmm.) The exception to that is flood control, and that is if you're at a stage where you're going to spill, well then you release to make the most save possible, and you don't worry then about whether you're wasting water or not, because at that point you're under flood conditions. And so, by the very nature you're going to be sending more water than is required. That aside, going back to how you prioritize. Water's the first priority, and so when the secretary of the interior, through the regional director in the Lower Colorado Region puts together a[n] annual operating plan they establish the annual release. "This is what's going to be released based on the projected water orders from the water customers, and the amount of water that's available through inflow into the reservoirs." So, that kind of sets the annual target. Then there's the Boulder Canyon Operations Office in Boulder City that has the responsibility for running what we call the Twenty-Four Month Study. And the Twenty-Four Month Study is a two year look at the water situation, and the water orders, and it actually says, "Here's the targets, by month, for the releases from each one of the facilities. So then that information is given to Western and they share that with the power community. And, it goes something like this. "Okay, in these twelve months, here's what's going to be released in total, and here's what's going to be January, February, March, etc., through the whole, the whole year. And, given that, how do you want your power?" And because we have a fairly large reservoir that we back up, Lake Mead. And even if you'd consider Lake Mohave, it's fairly large too even though it's, in comparison to Mead it's quite small, but it's large enough where, if we want, if a power customer wants power and there's no demand for water downstream, we have enough storage in Mohave where we can release that into Mohave from Mead, get the power, and ship it to whoever needs it, and still not lose any water, because now just, instead of being stored in Mead it's stored in Mohave.

Likewise, let's say that the water users say, "Well, we want water downstream now," and the Hoover customers say, "Gee, we don't need the power right now," well, we'll take it out of Mohave, run it, we do run it through those generating units, and we don't have to release it out of Mead yet. So we can, we have a lot of flexibility in our releases just because of the size of the reservoirs. So, we use those, that, those reservoirs to kind of keep our flexibility open so that we can meet the power demands without violating any of the water conditions. And so it's kind of a balancing act there, but it's not as tough as it sounds. It's pretty, it's actually pretty easy. (Storey: Uhm-hmm.) So. So it's a good relationship, because we can match those things pretty easily without violating any water constraints. Now, if we didn't have those reservoirs downstream, that'd be an entirely different story. And, of course that's why those reservoirs were, in part, built downstream, too. They were, they were built as regulating reservoirs. So.

Storey: Parker and Davis?

Ulrich: Right.

Storey: And, let's see, Davis is Lake Mohave?

Ulrich: Yes. Davis backs up Lake Mohave, and Parker backs up Lake Havasu. (Storey: Uhm-hmm.) And, in my Area Office, it's called an Area Office. It's actually just three facilities, or those three facilities, Hoover, Davis, and Parker.[2]

Storey: And the electricity's all controlled from the control room here at Hoover?

Ulrich: That's correct.

Storey: I mean for Parker and for Davis and so on?

Ulrich: That's correct. Yes.

Storey: So. If you get, if Reclamation receives a power order, (Ulrich: Uhm-hmm.) from Western, (Ulrich: Uhm-hmm.) we can deliver from Hoover, from Parker, or from Davis?

Delivering Power to Customers

Ulrich: You can, but they actually, because they're different customers, they actually send the signal for each one. So, they say, "Here's how much we want from Hoover, here's how much we want from Davis, and here's how much we want from Parker." They are different customers.

Storey: Oh, okay.

Ulrich: So, even though we control them all from Hoover, they're not completely interchangeable because they are different customers. Now, to the degree that you can satisfy some with the other, that is done to some extent.

Storey: Do we ever have problems in spite of our flexibility?

2. For more information on Parker-Davis Project, see Toni Rae Linenberger, "Parker-Davis Project" (Denver, Colorado: Bureau of Reclamation, 1997); located on the Bureau of Reclamation History Program website at www.usbr.gov/history/projhist.html.

Ulrich: Yes. There are some, there are some problems in spite of our flexibility, and they're not a lot, but there are some, and it's usually more as a result of recreation. Both Mohave and Havasu have a lot less flexibility in terms of their elevations, and especially Havasu. We don't vary Havasu more than about five feet. So, at times, the local communities will say, "Well, you know, we hope you won't change your elevation because we've got something going on." Like, well for instance a three-day weekend for Havasu and Mohave is a big deal, because they're so close to California, and their tourism is based on, is based on the California people, (Storey: Uhm-hmm.) Southern Californians. And, they want to make sure that those reservoirs are at a level that won't impede any type of recreation activity. So, we've had some occasions on long weekends where, because we were releasing for power and water demands and we weren't thinking entirely about recreation, we've gone into some periods where the elevations have changed substantially to the point it affected recreation.

Recreation as a Consideration in Power Production

To help mitigate that, we've talked with the power customers, the water customers, and the communities that are involved with recreation, and everybody recognizes the, oh the interconnectedness of all of this, and everybody's pretty–they're not going to, they're not going to, oh, they won't give anything up, per se, but they recognize that they want to cooperate with, to the extent possible that it doesn't negatively affect them. So, we have, we now, through our Boulder Canyon Operations Office, we have, on the web, what we expect the elevations to be in these reservoirs. And, before every long weekend we check with those downstream communities as to what's going on, and what are their wishes, so to speak. And, if we can, we try to really, to really stay in their, in their zone of comfort. (Storey: Uhm-hmm.) And, at the same time meet the demands of our customers. So, that just means a little, a little advance planning in terms of making sure that if there's going to be power needs that we're, that we have space in the reservoirs below to build that up at the time when there's going to be recreationists instead. So, it's just a, it's just a little more extra planning and, but nothing that can't be handled. We can do this, and we can keep everybody happy, usually. So. It's just a balancing, it's a balancing act. And, and as long as, what I find is if people are aware of what's happening, and they know what constraints are being placed, generally they'll be pretty reasonable in trying to, in trying to work with others. So, it's just a matter of making sure those communication lines are open, and everybody knows the problems that everyone else faces. (Storey: Uhm-hmm.) And, then they'll, people are pretty good that way.

Storey: What other kinds of–we've wandered and we're going to (Ulrich: Yeah.) come back.

(Laugh)

Ulrich: Sure. Sure.

Storey: Okay? When you were in the planning function, (Ulrich: Uhm-hmm.) what other projects did you work on? Do you recall any?

Other Planned Projects

Ulrich: Yeah. There was, another big one was the Deep Carbonate Aquifer Study, and that was looking in the Las Vegas area for these deep aquifers that were, oh, a couple thousand feet down, and they would be in these fissures, I guess. So that rather than a, oh, rather than a like a groundwater basin that's, you know, you can punch a well in a lot of different places. With a deep carbonate aquifer they're real narrow, and so you could put a well, have two wells that are only 1000 feet apart. One's dry and the other's just a glory hole. (Storey: Uhm-hmm.) And, and one of the studies to figure out how to hook these wells together, as I recall, and get the least cost method for obtaining the most amount of water. And, in that one I developed a linear programming model to help identify, how to minimize the cost for a given quantity of water. But again, that was a study that was too, I think it was too risky because of the nature of those deep aquifers. They're so narrow that the risk is too great that you come up with a dry well, I think. So. But that was another study that I worked on.

Storey: But why would we–you know, when I think of Reclamation I think of us dealing with surface water. (Ulrich: Uhm-hmm.) We do have some wells, and we've had some well projects. Some of them failed (Ulrich: Uhm-hmm.) and some of them are working. What were we doing here?

Ulrich: Well, a lot of what happens in the Lower Colorado Region is we have, the whole Southwest is so dependent on the Colorado River, and with the growth that we've experienced, we're also one of the fastest growing places in the U.S., and it puts so much pressure on the river that Reclamation's role is to try and mitigate the effects that population is having on the river. And so, we've undertaken a lot of these studies that don't seem to be in our normal, normal mission, just (Storey: Uhm-hmm.) because they relate heavily to the use on the Colorado River and we're trying to allow the local states, or regions, to get the most they can out of the river without, without overusing it. And so that's why we got involved in a lot of the well projects. That's why the Southern California water reuse was really implemented, because it's just a way of lessening the impacts on the Colorado River. (Storey: Uhm-hmm.) So. So, we got involved in a lot of things just because the river's just fully apportioned now,

and there's no other, and you can't get anymore out of it outside of some–I mean, we do have new conservation techniques always coming around, but they're relatively minor in comparison to the volume of the river. And so, you look for anything you can to help the . . .

Storey: And, where was this deep carbonate aquifer study?

Ulrich: This was in the Las Vegas . . .

Storey: The Las Vegas area?

Ulrich: Valley.

Storey: The basin there?

Ulrich: Yeah.

Storey: So, there's water there?

Ulrich: There is water there and, but it's, like I say it's, as I understand it and again this would be, you'd have to talk to a geologist, but if you can kind of picture rather than an underground aquifer that's kind of spread out, there's just a mound of water there (Storey: Uhm-hmm.) and so you, you know like, you take farm land you put one well here. Well, a thousand feet away that well's going to be pulling from the same water. Well, with deep carbonate aquifers those reservoirs are in, think of it as, the way I look at is it's in, they're in canyons, (Storey: Uhm-hmm.) underground canyons. And so, you can be just a thousand feet a way and you're outside the canyon, and so you can't get to any water. And, now it's been a long time since I looked at those, but that's my recollection as how they, (Storey: Hmm.) how to think of them, I guess.

Storey: Interesting. Any other projects?

Ulrich: Oh, I'm sure there were but they were all relatively small and I can't recall what they would have been. Let's see. Oh, yeah, the All-American Canal, I remember. And, that one's actually doing something again, but I worked a little bit on that one. Coachella Canal.

Storey: Well, of course, now, now wait a minute. The All-American and Coachella were built in the '30s, right?

Ulrich: I'm sorry, the lining. (Laugh) The lining portion. Yeah. (Laugh)

Storey: I figured that's what it was. (Laugh)

Ulrich: Yeah, they are well established.

Storey: So, the economics of lining them, huh?

Ulrich: Yeah.

Storey: Tell me the kinds of issues that are involved here.

Issues Regarding Lining the All-American Canal

Ulrich: Well, again you're looking at what amount of water you're going to get from lining. And so, as I recall, what we did in the case of lining is we looked at the cost of putting in wells right alongside the canals, because if you put in wells alongside the canal you can pump the seepage, right, out of the–what happens is an unlined canal seeps. (Storey: Uhm-hmm.) And so by lining, you avoid that seepage. One, one alternative is, don't line it just as it seeps pump that water out, because you're building a mound of water underground. And, now there's a couple of problems with that, but that's what we used as the basis. We said, "If lining is cheaper than putting these wells in, then you would line." Now, that's pretty simplistic, and here's what some of the things you have to consider. When you put a well in and you start pulling that mound down, do you encourage more seepage? Well, probably. And so, you have to figure that you're going to, you're going to have to have more wells to get the same amount of water that we just normally, (Storey: Uh huh.) normally would, you know.

The other thing is, in the case of the All-American, you have another country on the other side. And so, as you're building, because the All-American has been unlined, you have this mound of water that's been, of course, building since the All-American Canal was completed. Who owns the water under that? Well, if it's on our, if it's on the U.S. side, the U.S. owns that. If it's on the Mexican side, well, then the Mexican's probably own that. So, if you start putting a well on, let's say this is the border, and here's the U.S. and here's Mexico, you put a well here and you start pumping, you're pulling that mound of water down. So, the gradient of that water is going to change and start flowing towards the U.S. So, the Mexicans are going to have an objection to putting wells in because their position would be, "You're actually pulling our water, because even though you're pulling from your side, the gradient has changed and the water's now running towards the U.S. as opposed to this

mound where part of it's running towards Mexico." So, there was an issue with that's really not a realistic alternative because you could get into a groundwater pumping war. I mean, if you start putting wells along the U.S. side, just to protect their interests the Mexicans may put wells along their side. And, pretty soon, you're pumping this mound down and you're in a, you're in kind of a pumping war with another nation. So, that's not a good thing to do. But, for planning purposes, just to figure out, "Okay, what's the, is this a cost-effective way to do it?" You can still use that as kind of a measure, even though it's not an implementable, easily implementable solution. (Storey: Uhm-hmm.) So those are some of the things you consider in those types of studies. And, oh let's see. I can't think of anything.

Storey: Anything about, would anything have come to you about the fact that California was eventually going to have to live within it's allocation under the Colorado River Compact?

Southern California Water Reuse

Ulrich: Hmm uhm. That's mostly, that has, fortunately, mostly been done by other folks, but when I was in Southern California, of course again that's one of the reasons we were so interested in getting Southern California to look at water reuse, was to get them to live within their allocation and not take more than their appropriation from the Colorado River. The other thing was, one of the projects that we worked on over there was the Mono Basin Project. It's not really a project. Mono Basin has it's own particular problem. They, that's up above Bishop, California. And, back in the, I think it was around the turn of the century or so when Los Angeles started diverting their water from up there–normally there's about six streams that feed into Mono Lake. (Storey: Uhm-hmm.) And, Los Angeles, in looking for water, saw that as a potential water supply and started diverting those streams so that they would take that water, good water. This is mountain snow melt, you know, good quality water. And, it's up at an elevation that's going to be downhill all the way to Los Angeles. So, at the turn of the century, or shortly after, Los Angeles decided they would take this water. They bought up the farm land in the Bishop area and then started diverting water to Los Angeles. And, that's been historically one of Los Angeles' large water supplies. They get water from the state water project, from the Colorado River, ground . . .

END SIDE 1, TAPE 2. MARCH 1, 2004.
BEGIN SIDE 2, TAPE 2. MARCH 1, 2004.

Storey: From the Mono Basin. And that's the Owens Valley?

Ulrich: The Owens Valley. Exactly.

Storey: Okay.

Ulrich: And, so one of the things that we tried to do is there was a Mono–I forget the name of the organization, but there's like Friends of Mono Lake, something like that. It's an environmental group that's been trying to get Los Angeles to stop taking as much water from the Owens Valley.[3] And, of course Los Angeles was making the argument, "Well, gee, that's one of our best supplies because it's good quality water. It doesn't have a lot of total-dissolved solids, and it's cheap water from the standpoint of it's running downhill all the way. So, we're actually generating power that we can use in other places to pump water from some of the other sources. And so, it's one of our best water supplies." Well, Reclamation, through this passage of this Public Law, the one I can't remember the exact number to but that authorized all the water reuse in California, had talked about one of the things being the San, the, I'm sorry, the Los Angeles–hmm. Boy, I can't think of these names. But anyway, there was a Los Angeles portion to that bill, and one of the things that Commissioner Beard, at the time, wanted us to do, wanted Reclamation to do, was help in getting Los Angeles into reusing their water so they could, in turn, give up some of their entitlement to this Owens, Owens Valley. And so, we worked with the City of Los Angeles to do some water reuse projects so that they could work with these environmental groups in the Owens Valley and Mono Lake and decrease their dependence on that water source.

Storey: This would have been while you were at Temecula?

Ulrich: Right. Right.

Storey: And, this would have been about the time the Mono Lake decision came out?

Ulrich: Right. Right.

Storey: Yeah. We need to talk about that later. For sure.

Ulrich: So.

Storey: One of the–go ahead.

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3. For more information on the Owens Valley-Los Angeles water controversy, see Abraham Hoffman, *Vision or Villainy: Origins of the Owens Valley-Los Angeles Water Controversy* (College Station, Texas: Texas A&M University, 1981).

Ulrich: No. I forgot what I was going to say anyway. It wasn't as important. (Laugh)

Storey: One of the things I'm interested in is the way changes in a position affect the way a person functions. So, I'm interested in how Bob Johnson changed over the years, as you knew him as a branch chief, then a division chief, and of course, now as a regional director. Have you ever thought about that? Have you ever noticed anything?

Bob Johnson

Ulrich: Gosh. I'll have to, I'll have to think about that some, but Bob has been, I don't know that he's changed all of that, all that much. He's been a, I mean he really, Bob is the best economist that I, that I know. I mean, he just thinks that way all the time, and he sees things that I completely miss. And, I think that's been the key to his success, really, is he's able to somehow cut through the details and see a bigger vision for things. I think that's been true of him all the while. I mean, when he was a branch chief he, well he gives you a lot of latitude, as an employee. He gives you a lot of latitude and expects you to, to perform. I mean, he kind of sets the boundaries, but he's really, I find that he gives me as much latitude as I'm willing to take almost. And, but that's been from day one, and I credit his philosophy in allowing me to get into all those different types of (Storey: Uhm-hmm.) projects, because normally I think the tendency would be, with my background coming in, to say, "Well, I'm going to put you on all the agricultural stuff." Now, if he'd have done that I would have never been able to expand into the areas that I did, and would have never gotten to the position that I did. So, just based on his ability, and confidence I guess in himself, that I can somehow control all of this by, "If I give you the reins here, and I just keep an overview on everything," he's confident enough in himself that he can do that. (Storey: Uhm-hmm.) And I think he also, he doesn't have, he doesn't have any problem in letting others kind of take the spotlight. So, in my case, a lot of times that I was able to succeed in things, I mean, he let me do that. And in fact, I think, probably gave me more credit than what I deserved in a lot of the cases and so. I don't know that he's, I don't know that he's changed. He just has kind of expanded on that, I think, you know with a lot of, well a lot more people. I mean the higher he went the more he could do that with more people, and I think that's, that's one of the keys to his success, besides the guy is, just has, I don't know, more energy than anyone I know.

Storey: Yeah. He does have a lot of energy, doesn't he?

Ulrich: (Laugh) He just can keep on going when the rest of us are, "I'm going home."

(Laugh) So, I can't say enough good about Bob. I think he's been about the best person I could have ever asked to work for. And consequently, I have tried to follow him around because I don't know that you, you know, you can't work for a much better person.

Storey: Well, of course while you were in the Planning Office he moved on, is that right?

Ulrich: Yes. Let's see.

Storey: And somebody else came in?

Ulrich: Yeah. Let me–I did leave a little bit out there, because, I'm trying to think. When Bob left, I don't remember the year, but Bob left to go back to Washington as, I think, chief of the Repayment Office, back in D.C. I am not sure of that, but he went back to D.C. for a position. And, his branch chief's job opened up in Planning, and Steve Magnussen was at that time the planning officer. Or was it David? No, Steve Magnussen was the planning officer then. And, I applied for the branch chief of the Economic Resources Division, and I was selected for the position, and got that position. But, about, I don't even know if it was a year later, they, Reclamation decided they would, they would reorganize and move most of the planning functions to Denver, and they would leave only small skeleton crews in the region, like team leaders.

And, so I was scheduled to go to Denver, and I can't remember the details of this, but I didn't want to go to, I didn't want to leave. And so, at that time, I think Ed Hollenbeck had said, "Well, you know, we probably should keep a regional economist. So, we're going to keep, we're going to keep your position. You won't have a branch anymore, but we'll keep the position." And, so I was able to stay in the region. And, that's when, shortly after that Steve moved on to something. I think Steve went to be special assistant or something, to Ed, or maybe he went back to D.C. then and Joe–what was his name? Joe, Joe Jones, came in as acting planning officer, and then Joe moved over as chief of Power Resources and asked if I wanted to, he was the one who approached me about coming over to that group and working on the power stuff over there. And so, I did that. And then Joe left. Joe got a job with D-O-E [Department of Energy], and that's when I applied for the chief of the Power Resources. And Bob was already the division head over there. He had come back from D.C. as the head of Water Lands and Power Division. And, that's all so long ago I can't remember the sequence of things, but (Storey: Yeah.) (Laugh) there was a lot.

Storey: That would have been about ‘88, ‘89?

Ulrich: It must have been. Yeah.

Storey: Yeah.

Ulrich: Yeah. And, yeah, then I, see then I got heavily involved in the Navajo Generating Station.

Storey: While you were in the Power Resources Office?

Ulrich: Right.

Storey: So, tell me about that.

Navajo Power Generating Station

Ulrich: Well, I was the engineering and operating representative on the Navajo Generating Station plant. Because Reclamation has an entitlement to about twenty-four percent of that plant. We carry a lot of influence, or at that time we carried a lot of influence over what was done there. And, so it was typically the chief of Power Resources that would sit on that committee. And so when I took the position then I got to sit on that committee. And, that was about the time when the Park Service and E-P-A [Environmental Protection Agency] decided that, you know, “Navajo is a big polluter of . . .” Polluter in terms of visual impact, because of the, because of the particulates that come out of the (Storey: Yeah.) stacks. So, about that time we got into these studies called, I think they were called the YTX [Mnemonic for Yttrium, a chemical species *see Chemical Compound Table*], and I don’t remember what that stands for, but it was a study to look at whether Navajo really had an effect on the visibility within the Grand Canyon, because the Grand Canyon of course is one of the premier national parks in the United States. And so, their concern was that the visibility was being hampered by the emissions from Navajo Generating Station, that 2250 megawatt steam-fired coal plant. And, so, as a member of the Navajo Engineering and Operating Committee, and having the largest entitlement to the plant, Reclamation became one of the leads in, “Well, what are we going to do with this?”

And so we hired, in fact I hired, as chief of Power Resources, I found an air quality specialist out of the University of, it was in St. Louis. I can’t remember what the university was, but there was a guy there that was an expert on air quality. And so I hired him on a, like one of these I-P-As [Inter Personnel Action], and we worked

with Salt River Project in trying to figure out just what the impact of Navajo Generating Station was on the Grand Canyon, and was this a major source of pollution or not. Recognizing, when I say pollution it's just the visual portion. Navajo Generating Station is one of the cleanest coal-fired plants you're going to find, well within the E-P-A standards of emissions. So, this is pure, purely a visual thing. This has no health connotations whatsoever. And so Salt River Project, of course, is the operating agent for that plant, and they in turn have about twenty-one percent entitlement, or ownership, and so they took the real lead on developing the studies. And, of course E-P-A and the Park Service were doing their studies, and we're kind of on opposite sides of the table on this issue, even though we're sister agencies, Park Service and Reclamation. And, I guess the long and the short of this, we went a couple of years back and forth with these studies, and we were convinced that we didn't have any significant impact on visibility in the Grand Canyon. They were convinced we did. Well, the long and the short of it is, they won out. Even though I, I continue to hold the belief to this day that that was an entirely big waste of money.

Storey: Seems like it's the wrong direction from the power plant?

Ulrich: Yeah. Yeah. And, there's other things. I mean there, as I recall these studies had shown that, you're right, for one thing it's, you know, the winds go predominately the other direction. So, so the emissions, if there were a visual impact, it would be to areas to the northeast of Navajo Generating Station, not the southwest.

Storey: That would, you know, that's the way it would be in Colorado, eastern Colorado. (Laugh)

Ulrich: Right. Right. So that's one thing. Now, the Park Service contended that actually there's layers of wind direction. (Storey: Uhm-hmm.) And so, if it gets in this, the upper, I'm going to say the upper layer. I don't know for sure. But, if it gets into one of these layers it's truly going to go the direction we were just talking about, to the north, northeast. But, if it gets into a different layer, portions of that come the other direction. (Storey: Uhm-hmm.) And, I think that is, I mean, there's, there's fact to that. I mean, there certainly are those layers, and those directions do exist. Or, those wind directions exist. The other thing was, when we did the study with the experts that we had, what they determined was usually when you have–the primary polluting component is sulfur dioxide, and so, and you indeed, when you burn coal you emit sulfur dioxide. There's no, there's no getting around that. That's a component of coal. So, the question was, when does sulfur dioxide convert to a sulfate, an SO_4 component that's attached to another molecule. And, what we have, what we determined was that exists when you have a high degree of humidity. And, so if

humidity is high you're going to get a conversion from SO_2 to SO_4 at a fairly high rate and you will indeed affect visibility at that point. The Southwest is not commonly known for humidity. (Storey: Uhm-hmm.) And so, we just said, "Well, when would that be?" Well, it would be during a big cloud event or a storm. So that is when, and we determined, "Yeah, we will have a visual impact during that time." Now, the dispute came in is that that meant seven percent of the time we would have a visual impact in the Grand Canyon, and a por–the majority of that seven percent is during a thunderstorm. So, visibility wouldn't be any good anyway. And so, "Yeah, we're going, it's going to be worse." (Storey: Uhm-hmm.) Nobody's going to be out there when it's raining looking, or very few, so your visitation that's going to actually be affected by this degraded visibility is going to be almost nonexistent."

And that's what we based our arguments on. But as many scientific arguments go, they get resolved politically, and in my estimation, politically it just was not acceptable to say, "This has no, or it has little, visual impact and is not worth the," I think it was, "$450 million to put scrubbers on the Navajo Generating Station." And, so it turned out I went back to Woods Hole, Massachusetts to talk to the, we hired the, not hired, we asked the National Academy of Science to look at what we had developed along with what the Park Service had developed, and as I recall, being a good scientific body, they came to no conclusion. (Laugh) So the, again, the long and the short of this is, we put scrubbers on Navajo, spent $450 million, increased the cost of electricity by, gosh, I don't remember what it was but it was a recognizable percentage of Navajo. And, since Navajo was the primary source of pumping power for Central Arizona Project then it affected the cost of the water on the Central Arizona Project.

Storey: On C-A-P?

Ulrich: Yeah.

Storey: When you say $450 million, that was Reclamation's share?

Ulrich: No. That was the total cost for the . . .

Storey: For everybody?

Ulrich: Yeah.

Storey: So we paid about a quarter of that?

Ulrich: That's correct, yeah. And, oh you know, and the other thing I forgot. The other thing I worked on was Central Arizona Project Plan Six.

Storey: In, when you were still in Planning?

Central Arizona Project Plan 6

Ulrich: When I was still in Planning, right.

Storey: Oh. This is when, what as the lake, was, Orem? Orem Dam was . . .?

Ulrich: Yeah. And then they went to Cliff.

Storey: Ultimately, yeah.

Ulrich: Cliff Dam. Right. It was Orem Dam, and then they abandoned that and they said, "Okay. We'll look at the Cliff Dam location." And, I don't even remember where it was, but I was involved in doing the economics on that. And, I presented that to, oh I don't even remember who it was, but I got a nice letter of commendation from the Arizona Congressional Delegation on the work I did there. (Storey: Uhm-hmm.) So. So, that was another.

Storey: But ultimately both of those, Orem and then Cliff were abandoned?

Ulrich: Abandoned.

Storey: Yeah.

Ulrich: Yeah. Yeah.

Storey: And, they redid . . .?

Ulrich: Roosevelt. They . . .

Storey: Well, they increased the height of Roosevelt.

Ulrich: Right.

Storey: Lake Pleasant.

Ulrich: Right.

Storey: What, I've forgotten the name (Ulrich: New Waddell) of the dam.

Ulrich: New Waddell.

Storey: New Waddell. Yeah.

Ulrich: That's right. Yeah and yeah. So. And then, in fact, I got involved in the, when they decided to raise Roosevelt. The question was should they upgrade the power plant or not. And, I worked with S-R-P [Salt River Project] in trying to determine that. We were, we got a little bit at odds on that one because I thought they should, I thought S-R-P should bear a little more of the cost of that power plant than what they thought. And the end result of that was they didn't upgrade the plant. (Storey: Yeah.) So. So, I don't know if I did any good, but (Laugh) I was on a lot of projects that didn't go anywhere.

Storey: Well, you know, a lot of this, that happened.

Ulrich: Yeah.

Storey: You mentioned the relationship between Navajo Steam Generating Plant and C-A-P? (Ulrich: Uhm-hmm.) But, that power isn't used directly is it?

Ulrich: It was going to be. Now I don't know, a lot has changed since I left that position, because now they cut some kind of a deal where Salt River Project's actually using the allocation that's there for Reclamation, and there's an exchange going on. And, I don't know the details of that.

Storey: Oh, okay.

Ulrich: But when I was still chief, yeah it was going to be used. That power was going to be, come from, as I recall, on the 500 kV system to Mead and then feed back into Phoenix.

Storey: Now, when was it you became the head of the Power Resources Office?

Ulrich: Oh. It must have been '89.

Storey: Okay.

Ulrich: And then I left towards the end of '92.

Storey: So, the power upgrading at Hoover was pretty much over?

Ulrich: Yeah. That decision was made and that didn't involve me. And then I got to look at some of the things going on, but I wasn't involved in the decision making.

Storey: And everything had been transferred to Western (Ulrich: Uhm-hmm.) by then?

Ulrich: Yup.

Storey: That had occurred what, '77 was it?[4]

Ulrich: Yes.

Storey: Something like that?

Ulrich: Yes. Yeah, right.

Storey: So, actually we're at a pretty good stopping point, I think, and it's three minutes, four minutes to three, (Ulrich: Okay.) which is when our appointment's supposed to end. So, why don't I ask you if you're willing to have the information on these tapes and the resulting transcripts used by researchers?

Ulrich: Sure. Sure.

Storey: Great.

Ulrich: That'd be fine.

Storey: Thank you.

Ulrich: Uhm-hmm.

END SIDE 2, TAPE 2. MARCH 1, 2004.

4. In the Department of Energy Organization Act, Congress transferred the power marketing functions of the Bureau of Reclamation to the Department of Energy, which was placed under the administration of the Western Area Power Administration, see United States Department of the Interior, Bureau of Reclamation, Federal *Reclamation and Related Laws Annotated,* Volume IV of Four Volumes 167-1982, Louis D. Mauro and Richard K. Pelz, editors (Denver, Colorado: United States Government Printing Office, 1989), 3056-7.

BEGIN SIDE 1, TAPE 1. MARCH 5, 2004.

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing Timothy Ulrich, the head of the Hoover Dam Office of the Bureau of Reclamation. The interview is taking place on March 5, 2004 in the Regional Offices of the Bureau of Reclamation in Boulder City, Nevada. This is tape one.

Ask you if there are any other big projects you were involved with while you were at the Power Resources Office? Maybe on, for instance, C-A-P, or . . . ?

Power Resources Office Involvement with CAP

Ulrich: We were involved with the C-A-P contract somewhat, but they were mostly, what they were doing was building substations at the time for the Central Arizona Project. And so our involvement was mostly working with some of the other power companies that would be involved in a substation, and making sure that we had the proper, well we had the proper connections and that we were getting a fair deal on the cost and things like that. So, it as mostly negotiating, and coming up with agreements for interconnecting to other people's systems.

Storey: When you say substations, this was because we were generating power or because we were using power?

Ulrich: Well, both. We were transferring power. We were, we had, Central Arizona Project, of course, was going to use Navajo Generating Station as its primary source of power, but then Hoover is also a source of power for a portion of Central Arizona Project. And, of course, neither of those facilities is located really near the Central Arizona Project so you have to have transmission lines and substations to deliver that power to the pumping plants that are going to be using it. And, so, I can't even remember the names of the substations that we were working on, but there were a couple that we'd have to transform the voltage from either 230,000 volts or 500,000 volts down to something a lot more closer to distribution voltages, which are around 34,000 volts. And, so you come into a substation and you've got to connect with breakers on each side of your connection, and possibly a substation would have a transformer too. So, you're transforming voltage. Some would be switching stations. A switching station is just one that's not transforming. So, you're just switching to a different, a different line so that you can go to a different location. (Storey: Uhm-hmm.) And, so those, we got involved in those things, and coming up with, oh the, just the cost of entering and things like that.

Storey: From your answer, the image I sort of have in my mind is that we were delivering power directly to C-A-P, to the pumping plants I presume, and, you know, the automated head gates and all that kind of stuff?

Ulrich: Right.

Storey: Directly from Hoover and from Navajo? Is that the right image?

Contract Paths

Ulrich: Uhm-hmm. Yeah. It, I mean, electricity is funny. You don't, you develop contract paths, because electricity doesn't take the path that you contract necessarily. It's going to get from–if you have a source of energy and a use for energy, you're interconnected with a lot of other places. You are going to generate at that source. You're going to generate the amount that you need at the place that you're going to use it. That energy may not go there at all. It may be somebody else's energy that you actually get. The electricity could flow from anywhere on the interconnected system to get to that spot, but all you know is if you had to use ten megawatts, you are generating ten megawatts. And so, contractually everything works out fine. Electrically, your ten megawatts that you generated may have gone to an entirely different party, and the generating that they were supposed to receive may have gone to you. I mean, you have no way of knowing where that, where that came from. I mean, a good example you can sign up in Nevada, you can sign up for Green Power. Nevada Power Company has this concept where you can sign up for solar power, and that's what you want to receive at your house. And, and so you pay a different rate because it's a little more expensive, but if you're environmentally conscious you might be willing to do that. So, you sign up for solar power to be served to your house and you pay that rate. Well, that, your line isn't connected to the solar generator, where ever they might have those, it just means that part of their generating mix, they've agreed that your load will be, will have enough supply from a solar generator, in this example, to meet whatever you demand. It doesn't mean that you get those electrons that were produced at that facility.

Storey: So, let's see if I'm understanding this correctly then. The power at Navajo and at Hoover is going onto the grid?

Ulrich: Yes.

Storey: And, C-A-P is taking power from the grid?

Ulrich: Right.

Storey: And, Reclamation is generating at C-A-P, I mean at Navajo and at Hoover, the amount of power we need.

Ulrich: Right.

Storey: So then the reason we're building transmission lines (Ulrich: Uhm-hmm.) and substations, and what was the other kind?

Ulrich: Switching stations.

Storey: Switching stations, (Ulrich: Uhm-hmm.) is in order to be able to get it from the grid to our project?

Ulrich: Right. Right. And, so . . .

Storey: Okay.

Ulrich: And so you're, you develop the electrical paths and you certainly have the contractual paths. And all I'm saying is, when the electrons actually flow they may or may not take that. (Storey: Yeah.) It all depends on the loading of the system. One day it may exactly follow that path. Another day, because of the impedances on the line it may, it may follow a different path.

Storey: Let's pursue contract paths a little more. This is the grid, right?

Ulrich. Uhm-hmm.

Storey: So, maybe Western owns part of the grid (Ulrich: Right.) now, (Ulrich: Right.) nowadays?

Ulrich: Right.

Storey: And, maybe what, Arizona Power owns part of the grid?

Ulrich: Sure.

Storey: And S-R-P [Salt River Project] owns part of the grid? And, on and on?

Ulrich: Right.

Storey: Tell me more about contract paths, and what that means.

Establishing a Contract Path

Ulrich: Okay. I guess to simplify it, again going back to a source and a demand, or a load, when you have a load you have to find some kind of source to serve it. So, you find a source and now you've got your source and your load, but you still need the path to get it there. You still need something, the road, to . . .

Storey: To move the energy?

Ulrich: To move the energy. And–could we just stop it for a second? [ringing]

Storey: Sure.

[Tape paused]

Storey: Talking about contract paths, and how they get set up and everything.

Ulrich: Right. So, okay, so you've got this load and you've got this source and you have to figure out the road that you're going to get it there. And, if there's already existing lines and existing stations, it's pretty easy. And so, but you don't just run out there, make your connection, and say, "Oh. Everything's fine." (Storey: Uhm-hmm.) Those lines are owned by someone, and the switching stations are owned by someone. And usually, especially the switching stations, will be owned by a number of people because there's a number of entities connecting in that yard. The same thing is true with a substation. From this point on I'll use substation and switching station simultaneously, and the only difference technically is one has a transformer, the other doesn't. (Storey: Uhm-hmm.) So, you might have five utilities connected in a switching station. Well, those five utilities then own a portion. Now, if each have one connection, they'd each own one-fifth of the station.

So now, let's say you're the, you've got your load out there and you've got your source and you need to come into that switching station that has those five entities. So you, you come in. You explain, "Here's the amount of load I'm going to be, I'm going to be requiring. I'm at the voltage of your switching station, and I want to, I would like to interconnect there." So, the first thing they're going to do is say, "Well, we have an investment. And, so we want part of our investment back because now

you're going to be using the investment that we made." So, being reasonable you have to agree. "Yeah. I don't expect to ride this for free." So, you're going to have to reimburse that party, probably for their original investment minus some depreciation probably, and then additionally you're going to have additional expenses in bringing new extending busses, bringing new breakers in, relays, all of those things. And, so you're going to have to bear those costs as well. So, let's say you do that. You bring in your breakers, and you install your relays, and you're all set, and you've paid to the parties their share, their just share of your, of you coming in. And so now you all agree that, "Okay, this is how we're going to operate from now on."

Now, there's some common points, like the buss, and the, there's going to be controls in a little control room and stuff. Those are all going to be common type equipment, and so you're going to have to also sign an operation and maintenance agreement that says, "I'm not only going to maintain my equipment, but whoever the operating agent is for that particular switch yard, when they have to make a repair, or they have to make an addition because of, just because of new requirements or something, I'm agreeing I will bear now one-sixth of the costs of that common equipment." So now you got your, you've got your switch, your interconnection point. Prior to this you probably negotiated a, or simultaneously you were negotiating with whoever owns that transmission line between your generator and this switching station that you're coming to. And so you'd do the same type of thing. You'd go to them and say, "I'd like to use your line. I'd like to wheel my power across your line." And now there's many ways you could probably do that. You could either probably buy into the line, just like you bought into the switching station, or you might just get a wheeling agreement, say "I don't want to own that line I just want to transfer power across it. Here's the loads I'm expecting to transfer. Here are the times I'm expecting." And, they could look at their history of that line, and look at the loading, and if that really causes a problem for them they're going to make you pay a little more to connect. If it's maybe at a time when the line is unloaded, you might get a better deal. But all of those things are going to be on the table and talked about, and you're going to come up with, you're going to look at other lines of similar characteristics, and find out what people are paying, and you're going to try and negotiate a deal to get your power across that line to that switching station, and then to your load. So, that's a very simple, simple way of looking at that. That can take years, depending upon how many entities are involved, what the complexity of your loads are, and your resource, and all of those things. So, it could be done in a matter of months. It could take years. (Storey: Uhm-hmm.) And, it's just really hard to say until you know what you're really trying to do. But, in our little example, you might, you know, with just six entities and one switch yard, and just one line, you might do that in a couple months.

Storey: But then it has to go onto the grid, right?

Ulrich: That is the grid. That all is connected to the grid. I took that complication out of the example because I'm not even sure I could explain all of that. (Storey: Uhm-hmm.) I'm not sure I understand it well enough myself.

Storey: And then you have to do the same thing at the other end?

Ulrich: You would, yeah. Exactly.

Storey: A switch yard where you have to take it off?

Ulrich: Exactly.

Storey: And move it to where ever you need it?

Ulrich: Right. Right.

Storey: I had a great question and it went away. (Laugh) Darn. What was it? Oh. [Pause 7 sec] Oh. Western, of course, is responsible for transmission. Is it us doing this or is it Western doing this on our behalf?

Ulrich: It depends.

Storey: I know it changed (Laugh) in '77, but . . . (Laugh)

Controlling the Transfer of Electricity

Ulrich: The complicated answer is, "It depends." Or maybe that's the simple answer. The complicated one is, if we have, C-A-P has its own transmission lines that were not transferred to Western. So, if we're coming across our own lines we wouldn't have to deal with Western. So, in all, I mean it just depends upon your, the path that you're trying to go and who owns the lines. Now Western owns quite a bit of transmission line, and so we work with them pretty closely. And, if they're the ones who are, if it's a simple thing we don't have any line or something, most likely we'd go to Western and say, "Here's our source. Here's our load. What would you suggest on how we get there?" And they'd probably negotiate on our behalf, so we would just be a negotiating party, and they would really take the lead, and that's probably the most likely today. So.

Storey: Hmm. But, when I say "we, C-A-P, we."

Ulrich: Right.

Storey: Still own transmission? I didn't understand that we got to retain any transmission.

Ulrich: Yeah, there's a little bit of C-A-P transmission and I, I don't remember if that's going to, or maybe it has changed already. And remember, this was back in the early '90s (Storey: Yeah.) that I was working on this, but, and C-A-P wasn't complete. Now it's been declared substantially complete, and repayment has started to take place. And, I don't know at that point, I can't remember the details, is the transmission then transferred once (Storey: Uh huh.) once construction is complete, or did they retain that? I don't know.

Storey: Okay.

Ulrich: But, at the time I was chief of Power Resources they had some transmission.

Storey: But, let's go back to contract paths. So, I'm envisioning a scenario like this. We have a contract path to get us to the switch station?

Ulrich: Uhm-hmm.

Storey: We have a contract path that gets us from the switch station to the ultimate switch station, the ultimate station?

Ulrich: The ultimate station. Uhm-hmm.

Storey: If you will. (Ulrich: Uhm-hmm.) And then we have another contract path that gets us to the load from that station, maybe?

Ulrich: It could be that. It depends upon . . .

Storey: It could vary, you know, lots of variations.

Ulrich: There's so many variance. Yeah. Yeah.

Storey: Interesting. That's really interesting. What about things like, I believe there's a power, there is or was a power plant on one of the canals down toward Yuma, for instance? A drop-structure, maybe?

Ulrich: Yeah. I think it's called Pilot, one of them is Pilot Knob. Or, Siphon Drop is one, and I think Pilot Knob is another. (Storey: Uhm-hmm.) I think they both have, have little, little generators on them.

Storey: Were you doing anything with those when you were back in Power Resources?

Ulrich: You know there was something going on on those. I assigned that to one of the, one of the staff, and I don't remember the details other than, yeah, we were working on some issues with a couple of those.

Storey: I suppose most of your attention is Parker-Davis, and Hoover?

Ulrich: That's correct.

Storey: And Navajo?

Ulrich: Right.

Storey: Pretty big plant there?

Ulrich: Right.

Storey: Hmm.

Ulrich: Yeah.

Storey: Any particular issues come up with any of those big plants while you were–we've already talked, of course, about pollution control at Navajo.

Ulrich: Yeah. Yeah. No, I don't remember any big issues. It was just mostly, each year we'd have to do the energy forecast for the year based on the water releases, and then work with Western in developing their master plan of how the production was going to take place, and then how the entities were going to take their energy and capacity.

Storey: One of the things about our power program, I believe it's called Preference Power?

Preference Power

Ulrich: Uhm-hmm. Yes.

Storey: That, you know, first our projects, then what, public entities receive our power, and so on?

Ulrich: Right.

Storey: Did you ever get into any issues over that when you were there?

Ulrich: Yeah. Yeah, there, in fact the Parker-Davis customers are a mix of, they call them "priority use customers," or "preference customers," and public entities. I guess, in my terms I use "priority use and preference." (Storey: Uhm-hmm.) Priority use is the project use, so to speak. So, those are the ones that were part, were Reclamation projects at one time, irrigation districts and stuff that need the power to operate the irrigation systems. So, they have a priority in public power. And, they're the first priority. I mean, we generally only build power facilities, first of all, to take care of those customers. And anything that's left, I mean you size based on the resource, but if there's anything left then you go to other preference customers, such as public-type entities.

Parker-Davis has both of those, and so there's always an issue between what's the total withdrawable amount of power for priority use versus what you're actually using? And, when the projects were planned and envisioned they weren't always built out right a way, and so they would reserve a portion of power for that build out. Now, you don't know when you're, you don't know what's going to be required, in terms of power, so you make an educated guess. You go through the calculations, the planning of, "Okay, how many acres are going to be irrigated? What kind of distribution system are you going to have?" And, you try to figure out, "Okay, how much power could be used in the future then, if it was fully developed?" And you make an estimate. And you say, "Okay, we're going to reserve that amount, to be withdrawn."

And, let's, let's use an example. Let's say a project starts out at fifty-percent of what it's real potential is. So, and let's say fifty-percent requires fifty megawatts. Well, so you say, "Okay, fifty megawatts is priority use," and I built a plant, a 200 megawatt plant. Okay? So, you've got fifty megawatts that are going to be used immediately, but you know that it's only fifty percent built out so you need to reserve fifty megawatts for when it is built out, if ever. So, Western does the marketing for this. So, Reclama–we would go to Western and we'd say, "We have this 200 megawatt resource. Fifty megawatts we're using now, and fifty megawatts we want to hold in reserve. They're available now, but we aren't going to call on that." So, Western then would say, "Okay, so I'm going to market 150 megawatts, but fifty of

that is withdrawable." So, they would ask us, "Well when do you, when do you think you're going to withdraw this?" "I don't know, maybe ten years." Okay, so that goes into the defined resource, and they go out and they put the Federal Register Notice out saying, "We've got a 150 megawatts that we're going to be marketing. Fifty of it could be withdrawn within the next ten years, but we don't know for sure. Who's interested? And here's the criteria."

Criteria is you have to be a public entity, you have to be able to take the power, and you probably have to be within a certain distance of the source. And, just a few things like that. There's a number of criteria that Western uses. So, people come back and they say, "Yeah, we want to use this resource." So, they might have ten entities come in to use this 150 megawatts and so they all get, make it easy again, they all get fifteen megawatts. Now, let's say we're five years down the road, and one of the priority-use customers comes and says, "You know, I'd like to build out my district a little more. I'm going to need another fifteen megawatts." Well, then it's incumbent upon Reclamation to say, "Okay, how are you going to do that? Are you using the fifty you already, you already have contract for?" And, we would review their plans and either say, "Yes or no. We agree you need fifteen more megawatts." If they need fifteen more megawatts then we would go to Western, we'd say, "We need to withdraw the fifteen megawatts." Well, there's probably some time frame that was defined in the contract that would say, "You have to give this much notice to give everybody ample time to figure out what they're going to do." And, in this case we would take one megawatt back from all of those fifteen customers. I'm sorry. I forgot how may I had. I guess I had ten customers?

Storey: I don't remember.

Ulrich: I don't even remember, but. . .

Storey: You would take it proportionally?

Ulrich: We'd take a proportionate share back, and that would go to priority use. Now these other preference customers, the ones that had the equal share of that remaining 150 would probably not be happy we were withdrawing it. And so, they would want to see, "Have you done your homework?" in terms of, "Are they, do they really need this much power? Have they been effectively using the first fifty that they had?" And, just making sure, because they don't want to lose that resource. So those things, those things come up in your, in fact every year you almost get into a little discussion with, "Okay, how did you use your power? Are there any efficiencies you can do to get by with less?" And so forth.

Storey: That's done at the Region?

Ulrich: That's done at the Region. That's correct.

Storey: Not at the project level?

Ulrich: Not at the project. Right.

Storey: Okay.

Ulrich: Right. Our, at the project we're pretty focused. It's produce, and make, get the most power out of every drop of water. And that is, at the least cost. That's really our drive. And, everything else is peripheral to that and is probably done by that office of, the Power Resource Office in the Region.

Storey: So, let's pursue this inter, this connection between the Project Office and the Regional Office some more. So, what I'm hearing is, basically down at the dam, in your Area Office, (Ulrich: Yes.) you are trying to maximize the power production out of Hoover, Parker, and Davis within your water delivery constraints?

Ulrich: That's correct. And, I'm trying to do that at the least cost knowing that I have to meet reliability criteria and availability criteria.

Storey: And so up here at the Region, then, they're the one's who are dealing with Western? They're the ones who are dealing with wheeling agreements, and station agreements, and all of the other stuff?

Ulrich: That's correct.

Storey: Are there any places where there's overlap that tends to cause issues to come up?

Ulrich: I don't think in our Region. I'm not familiar enough with other regions to know what (Storey: Yeah.) they face.

Storey: So, that division of labor works well for us?

Ulrich: Yeah.

Storey: So, if I'm reading this correctly, the Region would probably be the ones dealing with Western most of the time?

Ulrich: Yes.

Storey: You've got it defined, down at Hoover for instance, "My responsibility goes up to this breaker or this switch," or whatever it is, (Ulrich: Right.), and "I worry about that and when something happens on the other side, I . . ."

END SIDE 1, TAPE 1. MARCH 5, 2004.
BEGIN SIDE 2, TAPE 1. MARCH 5, 2004.

Storey: [Who] is it that contacts Western when you're in a situation like that?

Reclamation's Relationship with Western Area Power Administration

Ulrich: Actually, Western [Area Power Administration] would probably be the first to know, because they're really controlling the flow of power. They send us a signal for all of our plants, saying, "Here's how much we want from each plant," and they monitor that with their, with their control system. And so, they're going to be the first ones to really see a problem external to the plant. We won't, we won't even see that until it's, until it trips. A line trips, then we'll obviously see that, but they probably have indications even before. (Storey: Uhm-hmm.) And, so, so Western's going to know even prior to us. And, now we may observe something, and let's say in a switch yard, because we do switching for Western, since we're so close. We might do some switching in a yard for them, and we might notice something. And, at that point it would be our control room operator who would call Western's operations center and say, "We've noticed something in the yard that maybe you should, you should look at." So, it would mostly be calls between our control rooms, (Storey: Uhm-hmm.) that would be dealing with all of that.

Storey: It almost sounded to me like you were saying that we send somebody out to the switch yard to do the switching?

Ulrich: Yup.

Storey: It's not automated?

Ulrich: It depends.

Storey: Okay.

Ulrich: I mean, some things are and some things, some things aren't. And, so we . . .

Storey: But if it, if it requires a physical presence, (Ulrich: Right.) we assist Western?

Ulrich: Right. And generally . . .

Storey: Sometimes?

Ulrich: Right. And generally, our, I mean our operators not only just sit in that control room and operate, part of their duties are to walk that plant, and switch yard, and make sure everything looks, looks good. I mean, a lot of times, visually, you can detect a problem before it becomes a real problem. And, that's what part of their job is, is going around and noting, "This doesn't look right." And then they'll fill out a Trouble, Trouble Request, or just notify maintenance, or whoever it might be that, the appropriate contact.

Storey: Hmm, so, the folks from the control room are out on the floor, the generating floor?

Plant Operations

Ulrich: Yeah. The way, the way we've assigned labor at our facility is we have generally two control room operators on a shift, and what we call two power plant operators. And, the two power plant operators are the rovers. They're the ones that actually go out on the floor and do those inspections. And, if we have problems with a, let's say we're trying to make an automatic start with the computer and one isn't cooperating, that power plant operator will go out there and manually help that operation. We have now gotten to the point where we'll, many times we'll be down to two control room operators and just one power plant operator. We don't always call out, if one calls in sick or one goes on vacation. If everything seems to be working pretty well, we may not fill behind that position 100% of the time. That's been a change in our philosophy. It used to be we ran with five people on a shift, and if one called in, no matter what, we filled in behind so there were always five. We've changed that, in the interests of containing costs, and we find that we do not suffer any reliability, or availability, or safety factors. So, we're, it's been a good, a good transition for us. I suspect, one day, that we'll be down to just two. And, and they probably both be control room operators, but one will go out, will rove occasionally while the other just stays in the (Storey: Uhm-hmm.) in the station.

Storey: Well, yeah, I was wondering how we covered the control room. But, you've already covered that. That's great. That's very interesting actually. Anything else you can think of about the Power Resources Office that we ought to talk about?

Ulrich: Uhm.

Storey: What kind of staff did you have?

Responsibilities of the Power Operations Office

Ulrich: Oh, I think I had, I think I had about eight people. I had two power operations specialists, who would actually–oh, the other thing we did was we would do the reviews of Operations and Maintenance. So, in Reclamation we're required to annually do a review of our facilities. Every year that's done with our own staff. Every third year the Region goes out on that review, and then every sixth year we have Denver go out on that review. And the whole idea is, you want to review your facility every year to make sure everything's, everything's in good shape, and you note things that are maybe looking like they're going to need attention in the near future. And so you do these, you do these reviews. And, every third year it's a little more detailed, and documented a little more. That third year we get people from the Power Resource Office, and maybe from the Engineering Services Office to participate in those, in those reviews, and, and bring another perspective, another new set of eyes to the facility. And then every sixth is Denver. So, as chief of Power Resources I was responsible for making sure those reviews were completed. And, I had two operations specialists to help do that. And then I had two electrical engineers. And, I think I had three, four contract, four contract specialists. And then for a short time, I had an air quality specialist. That was done on an I-P-A [Inter Personnel Action]. And, I also had, for a period of time, a river modeler to help with–now that doesn't sound like it fits in the power arena, but it was really concentrating on trying to make sure we were running the river efficiently from a power perspective. And, so I had those people. So, that was about the extent of the staff. And then we'd have a few part-time students during the summers to help us with, oh, data compilation, and filing, and those types of things.

Storey: Contract Specialists? "Four," you said, I think?

Ulrich: Yeah. Yeah. I think there were, might, three of them might have been specialists and one of them might have been a technician. I can't remember if they were all specialists or not.

Storey: What were they doing?

Ulrich: They were the ones that would negotiate all of those, all of those wheeling agreements that we would have to do with Western, or any interconnection agreements,

administering the existing contracts that we had so that they not only developed contracts but they administered contracts. And, then also when Western and Reclamation split, there's a master agreement and so we each have responsibilities under that that would have to be taken care of. And so, those are the types of things they would do.

Storey: Hmm. That's great. Now, for instance, Boulder City, (Ulrich: Uhm-hmm.) was a Reclamation town?

Ulrich: Oh yes.

Storey: I think, probably, by the time you became head of the Power Resources Office it was, had been privatized, largely?

Ulrich: Oh yeah.

Storey: But, are they, for instance, a power contractor with us?

Ulrich: They have a portion of Hoover. Yes. I think it's like twenty megawatts. I'm not certain of that, but it's around there. (Storey: Uh huh.) And, so they do have, they do have a power contract with Hoover.

Storey: Did that cause you any special issues while you were head of the Power Resources Office?

Ulrich: No, you know, that didn't, that didn't really cause any problems, other than, you know, I always thought maybe I should get free power to my house, but they never did go along with that. (Laugh)

Storey: What about Las Vegas?

Ulrich: Las Vegas gets a share of Hoover through the Colorado River Commission. Colorado River Commission of Nevada is the primary contractor for Nevada, for Hoover energy and capacity. And then, and then Boulder City gets a little, a little portion of that. But, if you look at the Hoover power allocation, let's see, I think fifty-five percent of it is contracted to Southern California entities. And then twenty-five percent is Nevada, and that includes Boulder City in there. And, then about close to twenty-percent is, is Arizona, through the Arizona Power Authority. And I say "about" because Arizona Power Authority gets 19-point-something and (Storey: Yeah.) California gets 55-point-something. (Storey: Yeah.) But just kind of round it.

Storey: Now, when were you in the Power Resources Office?

Ulrich: It would have been probably from ‘88 or ‘89 to ‘92.

Storey: So, this was after the renegotiation of the contracts? Is that correct?

Ulrich: Yes. Yes.

Storey: So, you were not involved in that?

Ulrich: No.

Storey: Did you ever get any calls from Ed Weinberg?[5]

Ulrich: No, you know, I didn’t. (Laughter)

Storey: So things had smoothed out by then?

Ulrich: Yeah.

Storey: I believe that was when, when we removed the power companies from the power plant? Is that correct?

Reclamation Taking Over Hoover Power Plant Operations

Ulrich: Right. Right. I think the transition started to take place in ‘85, and I think it was essentially complete by ‘87. And, by, you know, by the time I took the next year or the year after everything was pretty much . . .

Storey: They’re were gone. It was all ours to operate?

Ulrich: Yeah.

Storey: You know, we didn’t have Cal Edison or whoever running generator two for us? (Laugh)

Ulrich: Right. Right. Right.

5. Edward Weinberg participated in the History Program’s oral history project, see Edward Weinberg, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation oral history interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in Washington, D.C., Edited by Brit Allan Storey, 2013.

Storey: Did you ever hear any stories about the kinds of issues that came up?

Ulrich: Oh. A few. I mean, I heard that, I mean the big, it was really inefficient because there were two operating agents at Hoover. There was Southern California Edison and Los Angeles Department of Water and Power, and there was two separate control rooms. And, there were, I think, about five voltages coming out of Hoover. Certain units were on a 69 kV transmission system, certain were on a 230, some were on a 287. I think there was maybe 161, and I can't remember all the voltages. But, because of that, if you were an entity that received your power on, let's say, the 69 kV system, and maybe that was attached to two, I don't know, two generators, and I don't know if that's the case. If one of those generators went out, even if it was for normal maintenance, you lost fifty percent of your allocation. So, and the others weren't affected at all. When we took over, and we made it into one control room we also consolidated voltages to 230. So, everything now is at a 230 volt, 230,000 volt system. And so now, if we take a generator out all you're losing is 1/17 of your allocation. So, it made it much more, much more efficient. And, and frankly, I think we maintain the plant a lot, a lot better too. Now, part of that probably comes from, if you know you're going to be losing, losing control, why would you put a lot of effort into, into maintaining it those last few years. You're probably going to just band-aid things, because that's the most efficient thing from your standpoint to do. (Storey: Uhm-hmm.) You certainly wouldn't, you know, you know if you're going to trade your car in next year, you're not going to overhaul your engine this year. You probably figure out how to get by without a complete overhaul and then trade it in. And, I think some of that went on because when we took the plant over, there was a lot to do. And we're, we're just now catching up, frankly. (Storey: Uhm-hmm.) And . . .

Storey: From that transfer about '86, '87?

Ulrich: Yeah. Yeah. I think so, because we had a lot of piping that wasn't, they probably didn't, well they just put band-aids on. I mean, they'd wrap it, and hang buckets for leaks, and stuff, and there was so much of that that we're just now getting, getting that taken care of. (Storey: Hmm.) And I don't say that to be critical of the operating entities. I think that was an economical, efficient decision on their on their part. And, now getting it into good shape is an economical and good decision on our part. I mean, because we're going to have this for, well, forever.

Storey: What are these power contracts we're operating under now, do you now the term of them?

Ulrich: I know they expire in 2017, so they were a . . .

Storey: That would be about a forty-year contract?

Ulrich: Well, weren't they, I think (Storey: '97.) renegotiated in '80?

Storey: Oh seven, seventeen, thirty years.

Ulrich: Thirty years.

Storey: More or less.

Ulrich: Yeah. Thirty-year contract, right.

Storey: Hmm. Do we have, did we have any issues that you had to deal with with our contractors?

Working with the Power Customers

Ulrich: Yeah. We had a lot of issues initially, even when I was still chief of Power Resources, when we first (Storey: Yeah, that's . . .) when we first took over the plants, even though that essentially was completed by the time I got there, the big issues with the customers were then, "Okay, now that you're taking it over, how do we interface? How do we work with each other to figure out that we're operating, that the plant is being operated in the best way for the customers?" And so, about the time I, we started having big meetings with the customers when I was still there to try and figure out, "What do we need to, as an agreement amongst us, to exist, to coexist?" And, the customers wanted a greater say. I mean, they were giving up, two of them were giving up control completely, but the others wanted to, wanted to know that we were operating in their interests, and that we were maintaining in their interests. And so we decided to set up an Engineering and Operating Committee for Hoover to help do that, to go through the work-plan process, the budgeting process, kind of develop our operating scheme and goals, and stuff. And, as I left, they got into really negotiating what's been now known as the Implementation Agreement, the Boulder Canyon Project Implementation Agreement.[6]

So, that was negotiated after I left, but it retained that concept of having and

6. The Boulder Canyon Project Implementation Agreement arose out negotiations between representatives of the Imperial Irrigation District and the Metropolitan Water District to adopt measures to conserve Colorado River water.

Engineering and Operating Committee that was really the committee that would, that would get involved in making recommendations to Reclamation on how to budget, develop work plans, what work to do, how to operate. And, they're, they're, I don't know how to describe the committee. They're kind of like a board of directors and yet they have no real authority, because we retain, I mean we could disagree with everything they said and we would do what we think is best. We have that authority. Practically, that isn't a good thing to do. You know, you ought to figure out, and this is the approach and the philosophy I've taken since I took over as the, as the area manager for the Lower Colorado Dams, is as any company you want to keep your customers happy, and you want to recognize their interests as well as yours. And, most of those interests I would, I'm just going to throw out, I'd say ninety percent of the interests are aligned between a customer and the party providing the service or product.

Storey: A very large majority?

Ulrich: Very large majority. There's this fringe that probably isn't aligned, and I would say it's just a matter of the degree of risk that you're willing to take. I think you're willing to take a little more risk when you're not the party entirely responsible. And, but as far as the production both parties, I mean we want to produce as much power as we can. They want us to produce as much power as we can. We want to keep our costs down. They want us to keep our costs down. Even safety, I mean, some people have argued, "Oh, you know, if you let your customers run, run things, safety will, will be hurt." I disagree with that, because safety eventually is going to come as a cost. If you don't perform safely, and you take chances, sooner or later something's going to happen and that cost of that accident is going to be borne by the customer. And, so even that, I think, is pretty well aligned. And, I think, I consider my big contribution, coming in as the area manager for the dams, was that philosophy. I think, I think I held the philosophy more that we really need to provide a good product and let our customers be involved in what product we're providing. And, I think the relationship has improved immensely because of that, and I think we're running a better, more efficient plant because of that. So, that all started under Power Resources but I have picked it up as the area manger for the dams.

Storey: But, I can see where–well, let me ask another question first. The O & M [Operations and Maintenance] expenses, are they paid every year?

Ulrich: Yes.

Storey: So, I can see where they were band-aiding (Laugh) and putting buckets under leaks,

and so on, (Ulrich: Right.) and they thought that was efficient, and then the transfer occurred and here you were sitting in the Power Resources Office, and they're saying, "You guys are trying to gold plate this plant on us," (Ulrich: Uhm-hmm.) what kinds of issues came up while you were in the Power Resources Office?

Building Trust with the Power Customers

Ulrich: Well I, that, that, that issue did come up. There were people who were saying, "Oh, you're trying to gold plate the plant," because they hadn't, they had seen their O & M costs pretty small, because they were band-aiding a lot of these things. And, we came in and said, "Wow, we've got to do a lot of work." And they took that to mean, because now we're, we're starting to plan work to take care of those things rather than put band-aids on them, we actually want to treat the disease. And, so there was this rub, because they didn't know that. They didn't really, other than the two operating agents, they didn't really know the extent to, of what we were facing down there. So, one of the things that I did when I came in as the area manager was I developed plant site visits. And, every year they come in and we actually, we not only go to the, a meeting room and have a meeting saying, "Here's our work plan and here's what we want to, want to do." We bring them into the plant and we say, "Okay, we've got a, we want to replace a compressor. Follow me." So, we go down and we look at the compressor. "Okay, here's the compressor, and here's the problem area, and here's the work that we've done on the compressor. It's failed this time, this time, this time, and here's the amount of parts we had to put in. Here's the amount of time we had to put in. A new compressor will cost this much, and it's going to avoid all of this. That's why we need to do this." "Oh, no problem." But, if you're just sitting in an office saying, and you're meeting and saying, "I need to replace a compressor."

Storey: And it's going to cost . . . ?

Ulrich: And it's going to cost $50,000. "Why do you need to replace the compressor?" Just because it needs it." That does not fly. And, I think we tended to have that attitude, and it wasn't, I don't know how to, I don't fault anybody for that. It was a mindset. People weren't purposely trying to withhold information. They weren't purposely trying to gold plate. They just, they knew the plant and they, it was like, "You ought to be trusting me." And, I think now we do have that trust. But, when you first, when you first start working with one another you don't start out with a trust relationship. I mean, I think you start out kind of thinking, "I wonder if the other party's trying to take advantage of me?" And then as you get to know one another, if you're truly working on the up-and-up, I think you develop that trust.

Storey: So, but that sort of tension existed then from . . .

Ulrich: It was really bad.

Storey: '86, '87, up until you came basically (Ulrich: Right.) I guess?

Ulrich: Yeah, it was really bad. Uhm-hmm.

Storey: That's too bad. [Pause 12 seconds] We've already talked about Bob Johnson and his management style (Ulrich: Uhm-hmm.) and that kind of thing.

Ulrich: Right.

Storey: Did it change any when you were the head of Power Resources? That you can think of?

Ulrich: No, Bob's . . .

Storey: He's really consistent?

Ulrich: Bob's been consistent. He's just a terrific analyst and a terrific manager, I mean, and he's just been that way ever since I've known him.

Storey: Now, how was it you went off to Temecula?

Managing the Temecula Office

Ulrich: Well, you know I was a, I was a branch, at that time the organization called us branch chiefs. I was a branch chief for the Power Resources Office, and that was a thirteen level, and of course as many of us, I don't know, have aspirations I guess of going on, getting more responsibilities, making more money. And, the area office opened up–at that time it wasn't an area office. It was called a Field Office, in Temecula, and it was going to be on this Water Reuse Initiative. It was going to be a Planning Office, and they were advertising for a special assistant to the regional director, at a GS-14. And, and at first I didn't apply. I mean, they advertised, and I don't know what happened, if they didn't get any applicants, or the applicants they got they didn't care for, for one reason or another. I don't know. I wasn't on that side of the thing. So. But, it was advertised and they didn't fill it. And, I didn't even, I knew it was advertised but I didn't pay any attention to it. I had a family at the ti–well, I still have a family, but my family was I had a son that was in freshman in high school and so I wasn't

thinking about moving at the time. But, I don't know, it was advertised two or three times and no one took it. Finally I thought, you know, maybe I ought to just apply and see if–it's hard to get a fourteen, and even if I have to move, maybe that's the thing to do. So, I went home and talked to my wife, and son. Surprisingly, I thought they were going to be, "Well, we don't know." But, they were really, "Yeah, let's, let's see if we can't move." So, I applied for it, and I got that position. So, it was a promotion opportunity and so that's why I went in that, in that area.

Storey: How did it come to your attention?

Ulrich: Well there's a, I think, you know, they kind of, I think we still do, you hear through the grapevine that these positions are open. If you're really looking it's easy to find it, because you can go to USA Jobs today. In those days, there was always, every building that, every federal building has this big board of the . . .

Storey: Job?

Ulrich: Yeah. Now, I wasn't looking at those so I didn't see it that way, because I wasn't really looking for another job. But I had, I mean this was a pretty visible job, a GS-14 within the Region, special assistant. So, everybody knew about it. And, I just never paid any attention, I don't know, until one day I was thinking, "You know, it would be nice to advance." And, so I think it was more through the grapevine that I kind of heard about it and decided I would be interested. And it was a fun job.

Storey: You had been here for your entire career up to that time?

Ulrich: Yes.

Storey: Is that right?

Ulrich: Uhm-hmm.

Storey: Tell me what moving entailed for you?

Ulrich: Oh. Actually, I had been, I had moved quite a bit in my life. Even, even as a child, because after my folks left the farm where my grandfather was, and we built a house and moved, my dad got a job with the telephone company and we moved out of town and stuff . . .

END SIDE 2, TAPE 1. MARCH 5, 2004.

BEGIN SIDE 1, TAPE 2. MARCH 5, 2004.

Storey: This is tape two of an interview by Brit Storey with Timothy Ulrich on March 5, 2004.

Moving already?

Moving to Temecula

Ulrich: Yeah.

Storey: A little bit?

Ulrich: A little bit. (Laugh) And so then when I, when I got married and I was in the Coast Guard, of course I moved around then. And then going to school, and then graduate school I moved. So, I was just used to moving, and so that wasn't a big deal to me. In fact it was the easiest move I've ever made in my life, because usually I'm moving myself. You know, I guess I'm a cheap guy, and I've always rented a trailer at first, and a truck later, you know. And I'd do all of the, my wife would do the packing, and the kids would help a little, and I'd do the loading and we'd truck off. And, this was the first time that the government actually was going to pay. And, I was going to do all of this stuff, and I forgot who it was in, who was responsible for the moves, but said, "Why would you do that yourself when it's going to be paid? Why not let somebody do that? You're not going to be any better off doing it yourself." "Well, okay." And, so they, you know, I took the relocation plan and man they came, it was fantastic. They came in, packed. We didn't even pack. They packed the boxes. In fact, a funny thing is, we had finished, we had finished eating when they came and we didn't realize it, they packed the dirty dishes. And, and when we got to our new place in California and we opened the box and here's dirty dishes. (Laugh) So, it was fantastic. It was the easiest move I've ever made. And, I think, for the most part, the family enjoyed it. I do think my son went from a pretty good high school to one that–at one time, I thought California had the best educational system in the nation. After having lived there I think they must have one of the worst. And, Boulder City was far and away more advanced in their high school than the Fallbrook High School was in California.

Storey: Huh. What did you about housing?

Ulrich: I had bought a house in Boulder City, so I sold that through the relocation company and I bought one in Fallbrook. And, I went from a, the nicest house I've ever owned

is in, was the one in Fallbrook. I was able to get a ranch-style home on a little over an acre of land on a hillside overlooking a little valley, and it was absolutely beautiful. I mean you could, you could see for miles. And, Fallbrook is one of the prettiest areas in Southern California. I mean it's just avocado and orange groves, and live oak trees, and just beautiful. So, that was a hard thing to leave. (Storey: Uhm-hmm.) Under, I think only under the circumstances of being able to come to Hoover would I, would I have left.

Storey: Did you take house-hunting trips, for instance?

Ulrich: I didn't take a house-hunting trip. It's so close. I mean, it's only three hundred miles. That rather than take, when you take a house-hunting trip it cuts down on your, on the amount of time you can have in, what do they, temporary or housing or something. So, what I did was say, "Gee, it's so close, we can run there on a weekend and kind of look around." And, so that's how we, we did it. We didn't take the house-hunting trip. (Storey: Uhm-hmm.) So. It was a, it was a fun . . .

Storey: It went well?

Ulrich: Yeah. It was a nice place to, nice place to live.

Storey: So, tell me about what you were doing.

Ulrich: In Southern California?

Storey: Yes.

Work at the Temecula Area Office

Ulrich: Well, it was a brand new office, and they had picked the site, and the office itself but it had never had a manager in it. So, I was the first one going in, and essentially got to set the thing up kind of the way I wanted it. And, that was a fun experience. I mean, it was, at the time, the planning officer in the Region was doing some of that work until they could find somebody, and so he had hired a, an analyst and a secretary for the office for me, or for whoever got the job. And so, and picked great people. So, when I came in I had a little staff, two people, and the whole job was supposed to be trying to get a study off the ground to look at reclaiming waste water, putting that to beneficial use so we could ease the demands on the Colorado River. And, mostly the Colorado River. Turns out we eased the demand on the Owens Valley too, but that was not the purpose of the office initially. And so, they wanted to get a number

of the water agencies, and wastewater agencies in Southern California to form a consortium of agencies to look at, what the real potentials would be for developing wastewater and augmenting water supply. So, that was the real task.

So, my job for the first year or two was just running around to all of these water districts and wastewater districts and talking to the managers and trying to get them interested in joining a study group and funding a study to look at wastewater. And, my selling pitch was that, "Well, you're going to have to fund a portion of this, but because it's in the federal interest to extend the Colorado River water supply, the feds are willing to pick up fifty percent of the cost of the study. And then the more entities you get involved, the less that, the remaining fifty percent is split up." And we were successful in pulling together, oh I think there was about a dozen agencies that did eventually sign up. And some others that kind of stood on the background kind of watching to see, "Well, is this really going to go?" And, I think a few others came in later. But, it was, it was fun going around and talking about the potentials and trying to get interest generated and then embark on this, on this study. And, we got it going. We got an agreement signed and we had entities like Metropolitan Water District, San Diego County Water Authority, Santa Ana Water Shed Project Authority, oh gosh, oh, L-A, oh, Central and West Basin Water Districts, all became part of that initial group, and agreed to fund the fifty percent of the study. And so we got it off the ground and going. And, later I think Elsinore Water joined after watching us for a while. And, I think Orange County later joined. So, it was, it was a lot of fun.

And then we started developing the scope of the study and really got into what it was going to do, and we hired a consulting firm to help us with the thing. And, I never did see that to completion, but it is complete, because I left in February of '96 and I think they completed it in about '98. So, and now, then while I was there the emphasis kind of shifted on me, because this public law that I had talked about earlier, I think it's Public Law 102-575.[7] I should have looked that up. Had a lot of wastewater projects in it to be administered by the Bureau of Reclamation in Southern California. And, it passed. I mean, that law passed and so all of a sudden, "Gee, we have authority to fund construction projects that were already planned by some Southern California entities." And, one of them was the West Basin Recycling Program. One was the Los Angeles Water Reuse something or other, I can't remember the full name of it, Project, I guess, Water Reuse Project, and, the San Diego County Reuse Project, and, oh, just a number of these things. And, all of a sudden I'm going from trying to beg people to join a study to trying to keep the door

7. Title XVI–Reclamation Wastewater and Groundwater Studies, in "Reclamation Projects and Reauthorization Act," October 30, 1992, in USDOI, BR, *Federal Reclamation and Related Laws Annotated (Preliminary)*, 1983-1998, 3875-89.

closed because they're rushing my office for the funds to get going on construction. And, while I was there we did, at the San Gabriel Basin Water Project, was another one, we did fund the L-A portion and we got that project going so that they could reduce the dependence on the Owens Valley. We completed the Water Reclamation Center in West Basin. And, that produced some, oh I think it was like 70,000 acre feet of water that was put to beneficial use and not just discharged to the ocean. And, oh let's see. There were a few others, smaller ones, but I can't remember which ones they were now. But, all of a sudden I didn't have to, I wasn't banging on doors, they were banging on mine.

Storey: Let's talk about the logic of this. (Laugh) Temecula, there had been an office there, but it wasn't this office? Is that the deal?

Ulrich: No. There was never an office. This was the first time there was an office there.

Storey: Oh, okay. It's out of the Colorado River Watershed, right?

Ulrich: Not the watershed. It's certainly not in the Colorado River corridor. But it's, we're in the watershed.

Storey: But, Temecula is?

Ulrich: Sure.

Storey: Oh.

Efforts to Ease Pressure on the Colorado River Watershed

Ulrich: The Colorado River feeds that area. I mean it's, in fact most, of San Diego County, that's where their water's coming from, is Colorado River. And Temecula's right on the border of Riverside and San Diego County. And, I think they, like I say the office, they actually sited the office prior to me arriving, but I think one of the, some of the reasons for that location was, well, they were looking for cost, keeping the office at minimum cost but yet being in the Southern California area so you could really kind of easily meet with the entities. And, I think, at the time we thought probably the biggest proponent we had was the Santa Ana Watershed, Santa Ana Water Project Authority. And, they're just up the road from there. And so, I think those things kind of entered into that decision. But, I'm guessing. I wasn't involved in that process. But, the primary purpose was the Colorado River was fully allocated in the southern, the lower portion, and in fact there was, I mean they were trying to figure out, "How

do, how, we got more needs than we got water. What do we do?" And, Reclamation as water master for the lower portion of the river said, "Well, we better, we better try to figure out, we can't develop anymore water so we better figure out a way to use what we've got better, or help people use what they've got better so they don't over, try to over-allocate the river." And so that's how we got involved in the whole thing. And then this public law came along and said, "We want you to get involved faster, more, and get something on the ground." And so we did.

Storey: So, the idea was that by improving Southern California's use of water and wastewater that you reduced their dependent on imports from the Colorado River?

Ulrich: Right.

Storey: Oh, okay.

Ulrich: Right.

Storey: So, there was special funding set aside by Reclamation for this, or by the Region for this?

Ulrich: By Reclamation. Well, it started out by the Region. The Region had proposed this in a planning effort, hence the planning officer started this office to begin with, because it was a Planning program. Planning had traditionally looked at, "Okay, you got water demands. You got water supplies. How do we match those up?" If water demands are growing how do we, how do we increase the water supplies?" And, that's how it initially, even the concept got going. And, then it just blossomed from there. Now, it's a big program. They've got a lot of things . . .

Storey: And the Temecula Office is still there?

Ulrich: The Temecula Office is still there. After I left it was, Rick Martin took over as the area manger, and then he moved down and is now kind of overseeing all of the water reclamation program within BoR [Bureau of Reclamation], and Bill Steele is the area manager in Southern California now. And, so each has moved the program along a little more. And, it's, it's a pretty, I think it's a[n] active program today, and receiving more funding than ever. I mean, (Storey: Uhm-hmm.) water demands haven't, haven't subsided.

Storey: Is this office also handling the things like low-flush toilets and all that kind of stuff?

Ulrich: We, we did when I was there. Now, I don't know that they're doing that anymore. I, since I'm not involved in the program anymore I haven't followed it. That was one of the things we started, also, when we were there. Figured, if you can reclaim water maybe there's, maybe we should just conserve it a little better to start out with. And so we did have a low, low-flow program where we would provide the funding for shower head, low shower heads, and low-flow commodes, and that was used pretty much in East, East L.A. And, Reclamation received an award from Mothers of East L.A. for the efforts that we put into that program for them. And, I think that was still when Commissioner Beard was in office, and so I think they presented him with an award. (Storey: Uhm-hmm.) So, yeah, that program took off about that time.

Storey: Tell me more about these projects. Did you say West Basin?

West Basin Recycling Center

Ulrich: Yeah, the West Basin Recycling Center. That was, that's probably the biggest, the biggest success because it conserves the most amount of water and actually puts it to beneficial use. And, as I recall it has three almost equal uses. One, they're providing irrigation water for residential-type irrigation, or maybe commercial irrigation is a better way of putting it, for, for yards and stuff. And so about a third of the water is used that way. So, they don't have to use the normal water supply to provide those plants with water. And then another portion was for industrial purposes, and I think one of the customers was going to be a refinery there. There's a refinery just a block or two away. (Storey: Uhm-hmm.) And so, I think about a third was going to go for industrial water, so again they don't to have potable-quality water. And then the last third was going to be for sea water intrusion barrier. And, as you're drawing–there is a significant amount of groundwater in Southern California. And, in fact, I think they provide, through pumping, about a million acre feet a year out of groundwater in Southern California. But, as they draw that groundwater the groundwater is declining. They're over-drafting, I guess. And, so what happens then is sea water starts, because you change the gradient, sea water starts intruding into that groundwater. And, of course you don't want that to happen because sea water isn't, well, it's too saline. (Storey: Uhm-hmm.) Too saline to put to any really beneficial use. So, what they decided to do was take this reclaimed water from West Basin and they would inject, they would inject a barrier between the groundwater basin and the ocean, and thereby building up this mound of water that would now change the gradient so some of it would flow to the ocean but it would keep that water from intruding in, and it would keep the groundwater from, the groundwater in the basin, in the basin as opposed to flowing towards the ocean. (Storey: Uhm-hmm.) And so those were the three purposes of that, of that project.

Storey: Well, what did they do? What was the, what was the actual physical project?

Ulrich: Oh. Okay, you put, you take the wastewater and you put it through, well it already goes through primary and secondary wastewater treatment. And, generally what happens, there's a plant, I think it's called Hyperion, right near where West Basin Recycling Center is, and then that secondary effluent was just discharged to the ocean. So, you have, in the case of Hyperion I think it's like 400,000 acre feet a year are discharged into the ocean because it's just secondary wastewater. What a water recycling plant does is it takes that secondary wastewater and it puts it through more filtration and, and biological treatment so that it can clean that up to what they call tertiary standards. And, at that level, now that water can be used. It's no longer a health hazard the way secondary water would be. And so now, at the tertiary level, it can be used easily without any health effects, on surface irrigation and, you still wouldn't drink it, but you can use it for ornamentals, for irrigation, for industrial water, anything that doesn't require direct human consumption. So, so that's the way that water is used. At tertiary treatment level, you can actually inject the water back into the ground and it's fine. If you want to get it to the potable, potable level, you have to put it through further treatment, like an R-O, reverse osmosis, unit, and then you've essentially eliminated all the biological components that are that are not healthy. And so, so you can actually recycle water.

There used to be cartoons in the paper when they first heard about this, you know, "Toilet to tap." And the cartoon was the, dogs a lot of time will drink out of a toilet, toilet bowl. Well, the cartoon was the guy pushing the dog out of the way so he could get to the, get to the toilet bowl, you know. (Storey: Uhm-hmm.) So there was a lot of, I don't want to say a lot. There was some negative, some negative connotations to doing this to the point of being potable. Now, there wasn't any negatives to using it for irrigation or using it for industrial water. But one of the programs that we had talked about doing that we never did, San Diego is really strapped for water, and it's only source is really the Colorado River. And, so, so they were thinking, "Why don't we take this beyond tertiary to an advanced water treatment." Meaning putting it through resource, ah, reverse osmosis. "And what we'll do is, then we'll take the product water and we'll put it into a reservoir and mix it with the imported water. So fifty, at most," was it fifty? I think at most twenty-five percent would be, would be this reprocessed water going into, with a seventy-five percent coming from the Colorado River. And then it would be, here's your reservoir for domestic use. And, from there, then it gets treated. I mean, that's raw water at that point. Then it gets treated for drinking water standards and is distributed to the, to the households. And, that's when the cartoons came in. You know, people were going, "Wait a minute." (Laugh) "We don't want to hear about this." And so, it never, it

never did go even though it's safe as can be. And, if you think about it, every river system in the U.S. is, I mean you're getting this whether you know it or not. If you think about Las Vegas, where does their wastewater go? I mean, it's treated, but it comes back into Lake Mead.

Storey: At a secondary level?

Ulrich: At a secondary level. And then it goes, goes down river. Now, it's mixed with, I mean their–oh, excuse me a minute. I got another . . . [tape paused]

Storey: We were talking about the West Basin Project.

Ulrich: Oh, right. And, I think we were talking about how the, actually San Diego where they were trying to use reclaimed water, advanced-treated reclaimed water.

Storey: They were thinking of it. (Laugh)

Ulrich: Yeah. Yeah. They were thinking about it and it didn't, didn't fly with the public. But I was saying, if you really think about it we're all drinking that right now, because on the Colorado River, and every river system in the United States, some communities are putting their product water from their wastewater treatment plants into those, into those rivers, and it's going on and becoming a source, raw water source, for other communities. And, now it was treated before it hit that, hit that stream, and before people actually get it in the tap it's treated again. And so, and they certainly have to meet all of the health standards when they're, when they're (Storey: Nowadays they do?) distributing water. Yeah, nowadays. (Laugh) So, it wasn't, I mean even though the public isn't ready to accept that, it's already happening in a different, in a different arena. I mean, you're not using your own but you certainly are getting somebody else's.

Storey: So, we were participating in this financially?

Ulrich: Yes. Yes.

Storey: So, what were we paying for?

Ulrich: We were paying for, in some cases, studies, (Storey: Uhm-hmm.) to see if this were feasible. In some cases we did a few pilot projects where it went beyond the study phase and now they wanted to actually try it, but not at a, not at a commercial scale. And, in some cases we actually went to the commercial scale. Now, and West Basin

was one of those where it went commercial scale and you're, you know, you're providing essentially 70,000 acre feet of water that you didn't have before, that was going to the ocean.

Storey: So, we were paying for the development of the tertiary . . .

Ulrich: The construction.

Storey: A treatment plant?

Ulrich: Yup. The construction. So, I think if it were a construction project at the commercial level we would contribute up to twenty-five percent. In the case of West Basin we did contribute the full twenty-five percent. For studies we would contribute fifty percent, and for pilot projects we could contribute up to fifty percent. So, depending upon what entities were trying to do, and if it'd fit our criteria we would fund (Storey: Uhm-hmm.) to those levels.

Storey: But we don't take any ownership?

Ulrich: We don't take any ownership.

Storey: These were grants?

Ulrich: They were grants. And, the only thing that we provided was, of course we do some oversight because there was . . .

END SIDE 1, TAPE 2. MARCH 5, 2004.
BEGIN SIDE 2, TAPE 2. MARCH 5, 2004.

Storey: Because there was federal money involved?

Ulrich: Right, and also because federal money's involved they had to satisfy NEPA [National Environmental Policy Act], and so we would usually do all of the environmental work required so that we could be certain that NEPA was going to be complied with. And, let's see. Those are primarily the things that we would do.

Reclamation Unable to Supply Technical Assistance

Now, we were available to, for technical advice too. We have, we had our Denver Office, we had a number of people in the Denver Office that are fully capable

of providing the technical expertise from an engineering standpoint to design these systems and so we were capable of providing that too. And we had requests for that, but at the time Reclamation didn't want to do that, for some reason. They, they decided, "No, we'd rather just give the money and find the technical expertise in the private sector."

Storey: Really?

Ulrich: Yeah.

Storey: Is that still the way it works? Do you happen to know?

Ulrich: I'm not sure the way it's working now, no. (Storey: Hmm.) It may have changed somewhat. But, of course now, what's happened, as soon as you tell–we had interest from people saying, "Oh, if you could help us that'd be great." And, while I was there if Reclamation would have taken the position, "We'll provide the technical expertise if they want it, and even charge them," oh I could have built a big program. But, the commissioner at the time . . .

Storey: Dan Beard?

Ulrich: Dan Beard[8] did not want to get involved in that at all, other than he thought it was a good idea and it needed to be funded, but it should be funded by us and done entirely by someone else. He didn't even like the idea that we were doing the environmental side of it, and he didn't know why we had to charge for the administration of it. And we finally worked out a deal where we said, "Well, how can we administer something if we don't have an ability to get funding for it?" And so we finally did get, get that.

Storey: It's interesting. This is of course one of his pet programs?

Ulrich: Yeah.

Storey: Yet he didn't want to in any way support the Service Center?

Ulrich: No.

8. Commissioner Beard participated in the Bureau of Reclamation's oral history project, see Daniel P. Beard, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, from 1993 to 1995, in Washington, D.C., Second Expanded Edition, 2009.

Storey: You know, his view was, as he expressed it to me was that, "The private sector nowadays, as opposed to historically, can do anything Reclamation can do."

Ulrich: Well, that's certainly, that's probably true. And, but I guess we did have an expertise in that area. And, some of the smaller communities, I mean I can remember specifically the area around Big Bear coming and saying, "We'd really like you guys to give us the technical help because we don't want to go to a consultant who has an interest in making a project go whether it's really good for us or not. Whereas we feel, since you're a government agency and you're not going to profit by this, you're going to give us a better product for us, because we don't have any of the ability to even evaluate these things." (Storey: Uhm-hmm.) And that's why we could have gotten a lot of, a lot of work.

Storey: Big Bear is the lake up, what, west of Reno somewhere?

Ulrich: No. I'm sorry it's in the, above San Bernardino.

Storey: Oh. Okay. It's a different (Ulrich: Yeah, yeah.) one than I'm familiar with.

Ulrich: And, and there were others too. I can't remember the names off hand. But, there were others that came, the smaller communities that said, "Boy, we could really use, use you if you could provide us the technical help. The money's great, but if you could provide us the technical help that would be, that'd be even better." And we couldn't, or we wouldn't. (Laugh) (Storey: Uhm-hmm.) And, so then after, after that we kind of developed our policy that we wouldn't do that. Now, going back and trying to reinsert yourself as, "Here, we're these experts," I think is going to be, if they're doing it that's great, but I would think it would be harder once you say, "I'm just a, I'm just a banker. Either you have the money or you don't." As opposed to, "Yeah, I'm the banker to some extent, but I'll help you with, evaluate whether this is really going to work for you." (Storey: Uhm-hmm.) And, so. That was just. . .

Storey: Well, I have a bunch more questions, however, our appointment's over.

Ulrich: Yeah, right.

Storey: (Laugh) So, I'd like to ask you if you're willing for information on these tapes and the resulting transcripts to be used by researchers?

Ulrich: Sure.

Storey: Good. Thank you very much.

Ulrich: You bet.

END SIDE 2, TAPE 2. MARCH 5, 2004.
BEGIN SIDE 1, TAPE 1. JUNE 15, 2004.

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing Timothy Ulrich on June 15, 2004, at about eight o'clock in the morning. This is tape one.

Last time I think we had started talking about power operations at Hoover.

Ulrich: Okay.

Storey: And, you had mentioned something called "contract paths."

Ulrich: Oh. Uh huh.

Storey: Could you talk some more about those for me, please?

Ulrich: Well, a contract path to me is we have contractors that are entitled to a certain amount of output of our plant. And so, no matter where they are they have that output. And, then there's transmission lines to get them there. I mean, there has to be a path, because they have to figure losses and stuff. But, when we actually generate, and let's say they're requesting fifty megawatts, that fifty megawatts may be going to somebody else, and they may be getting that fifty megawatts from whoever the other party had the contract with, because you don't really track the electrons of, that are generated. (Storey: Uhm-hmm.) All you care is that you asked for fifty, you paid for fifty, and you got fifty. And, if everybody gets what they're asking for, and everybody is generating what they're supposed to, who cares where the actual path went? So, the only concern of yours is the contract path, because that's what you base your, your, that's what you paid for, and that's what you base your losses and everything on. So, I guess if I could draw something I could show you that, but it wouldn't come out on the, on the tape here.

Storey: Uhm-hmm. So, what you're saying is, it goes, the power goes onto the grid (Ulrich: Right.) gets pulled off of the grid, (Ulrich: Right.) rather than us having a single-purpose transmission line that goes from us to the customer?

Ulrich: Right. Right.

Storey: Okay.

Ulrich: Yeah.

Storey: Okay. Hmm. Well, I wanted to talk about drought, too, and how it affects (Ulrich: Okay.) our operations along the lower Colorado [River], (Ulrich: Uhm-hmm.) but especially power (Ulrich: Uhm-hmm.) and water delivery? (Laugh)

Drought Effects on Power Production

Ulrich: Alright. Okay. Well, I can help you with power. I'm not going to be too good on the water deliveries, because it's kind of outside of my purview. (Storey: Uhm-hmm.) As long as I can get it through the plant, that's about it. But, we are being affected by drought pretty heavily right now, because we're at, I think we're at 1,120, I think we're at 1,129 feet on Lake Mead. That's twenty, 1,129 feet above sea level. (Storey: Uhm-hmm.) So, that would be the surface elevation of that reservoir. In 1999, maybe even 2000, no I think '99 was our high year, we were at 1,217. Twelve seventeen is just four feet below the top of our gates. (Storey: Uhm-hmm.) So, we were, we were essentially full, and that's, now we're in the fifth year, in fact we're going to be ending the fifth year of drought, and maybe going into the sixth year, most probably going into the sixth year. During that time we've drawn that reservoir down from the 1,217 all the way down to the, I think it's 1,129. I can check on that, but it's within a foot or two of that. (Storey: Uhm-hmm.)

Now, that's what the reservoir was designed to do, and, and as long as we have the reservoirs working that's not really a problem from a water standpoint. It makes people a little nervous, because they see that big white ring around the lake, which is the calcium carbonate deposits from when the water was up that high. And so, right now, even though we have declared a partial domestic surplus, and that was defined in those Interim Surplus Guidelines that the regional director and the assistant secretary for Water and Science negotiated with all the parties. And, according to that, we'll keep declaring at least partial domestic surplus all the way down to 1,125 feet, on January 1, or December 31, however you want to look at it. If the lake is, Lake Mead that is, if it's 1,125 or greater on December 31 or January 1 they'll declare a partial domestic surplus. And, I don't recall what the amount of water is there. It's a couple hundred thousand acre feet. They declared that last, this last January, and so far people are not taking it, even though it's been declared, and it's available to them, they're not taking that surplus. And, they're not because they look at the lake and

everybody's looking at, "Gee, how long could this drought last?" And, what they would like to do is say, "Well, we're not going to use as much water as we could now. We're going to implement conservation measures, and we're going to save that water so that we can extend, if the drought lasts longer, we can extend under normal conditions longer." (Storey: Uhm-hmm.)

So, almost all of the districts are seeming to do that. I mean, in Las Vegas they were on, I think it's called a "drought alert" now. There's, I think the first one is "drought watch," and now we're on drought alert. So, under drought alert we have, we have to adhere to different watering times during the day. And, during the non-summer months there's certain watering days you can do. We can't wash our cars anymore, unless you have a fixed shut-off valve on your, on your hose, and then you can wash your car once a week. And that's kind of, that's what Las Vegas is doing, Las Vegas Valley. They're also, they have a turf reduction program. So, they're paying people to take turf out of their yards. And, so you not only get, you're using reduced water and so your bill goes down, but they're actually paying you a certain amount to take that out. And, even though a lot of people think of Las Vegas as a lot of casinos, and water-theme casinos and stuff that are using all the water, the casinos, hotels, and restaurants combined, they say, only use about ten percent of the water, in the Las Vegas Valley. And, and the, about sixty percent is used in yard, in residential yards. So, that's really where they have to, they have to conserve. So, what they're doing is they're going after the residential yards, and trying to, in a voluntary manner, trying to get people to conserve. And, it's working. And so, they don't have to take that partial domestic surplus. So, what that means is then we aren't releasing that surplus and the lake will, will survive a little bit longer under normal conditions. And so, water-wise it looks good. Now, the interesting thing is, you know there's been this, all this controversy over Glen Canyon, and if we wouldn't have Glen Canyon Dam now, Lake Mead would be down around, I don't know, I mean I haven't run those studies, but I think we'd probably be down where we'd be close to not being able to make releases. So, that's the value.

Storey: Because?

Ulrich: Because Powell is there. That's, we can still do that.

Storey: No, but we would not be able to make releases because . . . ?

Ulrich: We would have already, we'd have, we would have already gone through the amount of water we had in storage, because Powell wouldn't have been there. That's providing the same amount of storage as Mead. So, if you look at them combined,

they're about fifty-five million acre feet of storage. And, we're down now to a combined, let's see, we'd be at about probably twenty-five million acre feet. So, if we would have not changed, if we'd have released just like we had, and we wouldn't have Powell (Storey: Uhm-hmm.) we'd be close to dead pool, in need. That's how important Powell is to the system.

Storey: Dead pool is . . .?

Ulrich: Dead pool, you can't get it out. I mean, it's just . . .

Storey: It's below all the outlets?

Ulrich: It's below all the outlets, and it's just there. You can do a little bit of recreation. That's about it.

Storey: Yeah. People don't realize we're talking for historians. (Laugh) And they sort of need help understanding what we're talking about. Yeah.

Ulrich: Yeah.

Storey: That's interesting.

Ulrich: So, that's really, you know, that's something that people really need to think about because, you know, they keep saying, "Oh, we wouldn't like to get rid of Glen Canyon Dam and Lake Powell." We'd be in really in bad shape today if we didn't have it. So, so we're really fortunate.

Drought Impacts on Power Production

Now, with that said, so then what happens to, what are the power impacts? We've had, that's where we have had significant impacts. Because as the lake level comes down, as Mead comes down, the difference in elevation between the tail bay and the fore bay is what creates the water pressure that drives the turbines. So, above about eleven, above about 1,190 there's not reduction in our capacity. We can put about 2,074 megawatts, we can generate that much at Hoover Dam. And, above, above about 1,190, that's the case. So, 1,190 to 1,217, or 1,221 actually, top of the gates, we can generate that 2,074. As we start going below that, then the capacity starts dropping, because the, there's, essentially there's three variables that you look at in hydropower. One is head, that's the pressure. Another is flow. And, and then the last one is efficiency on your units. So, as the, and it's, they're all positively related to

generation, so they're multiplicative.

So, as you reduce any one of those variables, you're reducing the output. So, in our case, now, we're reducing head. And so, as head comes down the ability to generate comes down. So, if you, well, as we've been coming down we actually do the tests on the generating units. Every two feet we try to see what we can put out of each generating unit and that's what we declare as our capacity. We then give that figure to Western, officially, and then they send that out to all the power customers, saying "Here's what your new capacity allocation is from Hoover." So, they know what they can call on. Because if you can't get 2,074 out of the plant, and they called on it, somebody else would have to provide that. And so, they'd have to pay somebody else. So, it's important that they know that. So, right now, at, I said we were about 1,129 feet of elevation on Mead. We're down, the last letter that I sent out said we could generate 1,767 megawatts. So, we're down from 2,074 to 1,767, and we'll be dropping some more. In fact, the latest test they may have run this weekend. I' m not aware of it yet. And, that'll be the last letter we probably put out for the summer, because then, right now, we're expecting inflows to pretty much match outflows, so that the elevation should change almost, almost, well it'll be negligible. So, we won't see it coming down again until later in the fall, and then we'll start doing our tests again every two feet. We're anticipating that it'll probably drop to about 1,740, based on just mathematical calculations now.

What we're missing is the real efficiency of the units. And, the efficiency changes as well, when you're coming, when you're coming at different elevations. So, that's why we're doing these tests now. We've never been in these elevations before, because in the late '80s we changed out the generating units, and we changed out the turbine runners. And, when we did that we changed the hydraulic coefficients of those generating units. (Storey: Uhm-hmm.) So, we only know theoretically what they'll, what they'll produce. We've never really experienced what they'll produce until, until now. And, that's why we're, we're doing the tests, the physical tests, to see how we match to the theoretical. And, I mean, we're close, but it's not quite on. Now, as we, as we come up we won't have to do those tests, because we'll know when, once we've got the curves for these generating units we'll know what we can produce. And so from now on, until they make a change on those generating units, or the turbine runners, or the water passages, this, the figures that we're experiencing should hold. (Storey: Uhm-hmm.) So, that's why we're, we're doing that.

Now, the other variables are flow and efficiency. We've just mentioned briefly the efficiency. That is changing as we come down, and it's creating not only a decrease in efficiency, but it's creating rough zones in the units. And when I say a

"rough zone," some generating units will have zones within their generation curve, so if you've got a 100 megawatt generating unit, you can go from zero to 100 megawatts. There's a range in there where they don't really work very well. They'll generate in that range, but they'll vibrate, there'll be water cavitation, and so we don't like to run them in those zones. So, what we do is we identify those zones, and then we set limits in the control system that say, "For this unit, don't operate in this particular zone." And so then it'll, if it has to run in that zone, what it'll do is it'll run through it, and we'll back off on another unit, or it won't run into there and we'll just bring another unit, unit up. So, we try to match everything that way. Well, as the lake level has gone down, what we're finding is our rough zones are widening. So, that means that we have less flexibility on the units. Some of the units, our rough zone is so narrow that we just put the unit on what we call "set point." We say, "If it runs fine at ninety megawatts, that's where we set that unit and we don't allow it vary." Then we take up the slack with other units that still have a fairly decent zone where they can generate in. But, as the, as those rough zones expand in all of the units, we're finding it harder and harder to, to do that. So, what that mean then is, as Western needs what they call A-G-C, Automatic Generation Control, that's where they really, they regulate with that. And so, any little, any little change in the load we respond to with A-G-C. Our units automatically respond, the ones that are set on that. So, if we have units that we have to have set-pointed, and our other units the rough zones are widening, that means you have that much less A-G-C to be regulating for Western. A-G-C is an ancillary service that is of great value to the customers. We don't get paid for it because we sell our, our entitlement as a complete package. And, but our customers benefit from that. And so, if they don't get it from us they have to get it from someplace else, and they may have to pay for it from someplace else. So, there is a definite impact to power customers because of the lack of our ability to provide A-G-C. So, that's how it, how they're affecting the power side, in addition to the decreased capacity.

Then, we talked about how people are, how water entities are not taking their partial domestic surplus. Well, that means that releases are less than what they have been in the past. That's the other, the flow is the other variable. So, we have decreased head, we have declining efficiency, and now we have decreased flow. So, so that means there's that much less energy available too. So, we have all of these variables that are working against us in a prolonged drought, and that's what we're faced with today. There's a couple of things we're trying to do. One, we're trying to put in, we're going to do a study that we think will gain us some capacity by putting in stainless steel wicket gates. Right now, our wicket gates are regular carbon steel and they just have a stainless steel inlet, inlet, inset. So, they're pretty bulky. They're pretty bulky gates. Stainless will give you the same strength as the carbon steel, with

less material. So, the, so as your gates shrink in size, and in terms of their, their bulk, you can get more water through. (Storey: Uhm-hmm.) And, as you can get more water through, that means you can increase your capacity again. So, if your unit was 130 megawatt unit, and now it's only 100 megawatt unit because of the drop in head, you might be able to pick up five or six megawatts just by being able to get more water through there to make up for the head difference. So, we're going to do a study to see if that will economically pay. And our initial back-of-the-envelope analysis suggests that we'll, it'll pay for itself in about three years. And, that's figuring about a two to three percent increase in capacity, and a little bit of increase in energy too, because your, the flows through there will be less friction, (Storey: Uhm-hmm.) so you get a little bit of efficiency increase too. So, that's one of the things we're going to do. And, we're trying to, we're putting that on a fast track. Our next overhaul is Unit A1. And, we're going to try to get stainless steel gates in there. And then we'll, we'll actually measure what they really improve for us. And then we'll continue on that, on that endeavor if it really works out.

Attempts to Mitigate Drought Affects

The other thing we are looking at is doing an analysis to see, if we're going to be in a prolonged drought and we're going to keep, the lake level's going to either continue dropping or we're going to manage the lake at a certain, at a certain level, would it pay to change out the runners for low-head runners? So, they can redesign, they can reshape the turbine runners, the water wheels so that they're more efficient at lower heads. (Storey: Uhm-hmm.) Now, you give up that efficiency then when you go back to a higher head, but what we would do is we would keep the original, the runners that we have now and as soon as the head started, as soon as the lake level started coming back, and we get greater head, we'd then switch out the runners and we'd just keep the low-head runners for the next drought. We don't know how that's going to pencil out, but that's something that we're going to look at as a way of mitigating drought conditions from a power standpoint. We're thinking that we would do that on maybe two to four units. We've got seventeen commercial units at Hoover. We wouldn't do that for all the, all the units, but we would do it probably two to four units so that we'd have some good efficient units at the low heads. And so, if that pencils out that's probably what our plan's going to be, but it's a little premature right now. We're just looking at it.

Storey: Well, what kind of lead time does it take? You know, these aren't things you call up and say, "Send me four, please."

Ulrich: They sure aren't. (Laugh) And, what, it would take us, well it's probably going to

take us a few months to do the study, and then if we think it has promise then we'll do the computational fluid dynamics on it, which is the computer modeling of a runner to see how it would really react. And, that would probably take a few months again. And then once we decide, "Yeah, this is it. We can do it." Then the company, one of the runner companies would, would bid on the thing, and it would probably take them a year to manufacture that runner. So, we're probably looking at a two-year, a two-year time frame, (Storey: Uhm-hmm.) from the time we start now until, if everything works, and it says, "Yeah, this is worth doing," we wouldn't get it in there for two years.

Storey: Okay. Let's . . .

Ulrich: And so, that really then, now you're gambling. I mean, now, and I guess we're in Las Vegas so maybe that's appropriate, (Laugh) but what you're doing is you're saying, "Gee, maybe we're in drought for two years, are we going to come out then?" And so, do you go ahead with this thinking you're going to have, if–let's say the payback is three years. I don't have any idea what it would be, but let's just say, for arguments sake, it's going to be three years. What you're going to be gambling is that the drought is going to last five years. Because, if it lasts less than five your economics don't pay.

Storey: Five additional years?

Ulrich: Five additional years. Because you got two years of lead time, and then if your payback is three years, you're really looking at a five-year window that you need to, well nobody hopes for drought, but that's what it would take for that decision to have been a good decision, in retrospect.

Storey: Uhm-hmm. Well, let's talk about making that decision. Reclamation and WAPA, Western, aren't going to do that all by themselves, are they? Or are they?

Drought Mitigation Requires Input from All Interested Parties

Ulrich: No. No. We would, we would do that. The initial investigation we do on our own, because it's our job to make sure we're looking at all the opportunities that are there. But, we've already talked to all those power contractors that have entitlements to Hoover, and said, "You know, we think this is worth doing." They are the recipients of the power we now have and would be of the, of anything we create in the next number of years, up to 1217 [the year 2017 is when the power contracts expire] when the new contracts would come under purview. And they're, they're looking the same

way we are and saying, "Yeah, we think that's a good idea. Go ahead and pursue that, and let's keep, let's at least know what our opportunities are." So, at the point where we would have completed the studies, and said, "We think there's a three-year payback," that's when, that would be a major investment. I mean, those runners probably would be a million dollars each, to maybe one and a half million dollars each. Plus, you have to put them in. You have to take your units down, all the labor that goes into putting those in. So, it's a big investment. (Storey: Uhm-hmm.) So, at that point we would ask those customers, "Are you willing to pay, pay for that?" And, because we don't get appropriated dollars. So, they would be part of the decision-making process. We would make the recommendations based on the best analysis that we could do. They'll look at that analysis and then, based on their own assessment of what their needs are and what they think the future holds, they would either agree or disagree. And, if they agree, then we go ahead. And, if they disagree, we'd say, "Okay. Well, we'll just continue operating the way, the way we are." And, we'd be giving up some capacity. We'd be giving up some energy.

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BEGIN SIDE 2, TAPE 1. JUNE 15, 2004.

Storey: Be giving up some capacity and some energy?

Ulrich: Yeah, and possibly increasing our maintenance costs, because if you have a lot of cavitation, and a lot of, and you're operating, now we might have to operate in rough zones. We might not have any, any zone where they operate really well. And so, you're going to have a lot of vibration. And, of course, vibration means you're going to have wear on your bearings, and things will be, just like in a car, you know, things will be loosening up, falling off, standard mechanical stuff. So, that we would be, our maintenance costs would likely increase. So, all of those things we're going to be weighing against the investment cost of those other alternatives. (Storey: Uhm-hmm.) And . . .

Storey: So, when we go to our customer, Western's customers, technically (Ulrich: Uhm-hmm.) I guess, do they sit as a board, or how does this work?

Ten-Year Plan for Hoover Operations

Ulrich: They do. And, they're our customers as well. Western holds the electric service contracts with them. We have an Implementation Agreement with them. The Implementation Agreement outlines our roles in terms of how Reclamation operates with their, with their concurrence, as well as how they fund us so that we don't have

to get appropriations. We don't get appropriations. So that, that Implementation Agreement defines our relationship. And so, they are directly our customers as well as they're directly Western's customers. (Storey: Okay.) Now, how that works is we have what's called an Engineering and Operating Committee at Hoover. Every customer of Hoover has one representative on the Engineering and Operating Committee, and one alternate. So, we meet about three times a year, sometimes four, and just go over status of how things are going. And, we also present the work plans, the ten-year, what we call the Ten-Year Plan now. And, the Ten-Year Plan consists of ten years worth of projections on what we're going to be doing for maintenance, how we're going to operate, what line items we might be looking at in the, in the out years, and then really, in the next year, what we're really going to be doing in more detail.

And, and so they look at that and they give us feedback on whether they think that is in their interests or not. We have the ultimate decision. I mean, it's conceivable that they would disagree unanimously with us and we would still do something. It's conceivable. It's not probable, but it's conceivable, because we do have the ultimate authority, and we have not relinquished that. (Storey: Uhm-hmm.) I've not encountered it to this point, and I've been the area manager since February of '96, and we've never encountered that where we had everybody objecting to something that we said, "No, we're going to do anyway." And, I don't know what that might be. It's, but I say it is conceivable. I guess one thing would be, maybe, maybe they wouldn't be interested in–well, a close example would have been our, our bypass valves. Bypass valves are just there to meet water deliveries in the event that the generating units aren't available, or they're also there for flood control, if we have to make a lot of releases, more than we can make through the generating units, we can put that water through bypass valves. Our power customers, then, don't benefit from those bypass valves. And, we put those in in '98. And, that was, was a controversial line item because they didn't benefit, and yet they recognized the value of those as well. They know that water is the first priority, and they know that flood control, well flood control is the very first priority, and then water, water supply. Power is down on the list. And, they recognize that. And so, although they were questioning, "Do we really need to do this now?" and things like that, they never really objected. But, they're, conceivably they could have said, "We just don't want to fund that. We don't think it's of any benefit to us." Reclamation would have said, "Well, we're sorry that you feel that way, but we're going to do this anyway." And so, that's it, because we have to look at all of the beneficiaries on the river, not just the power customers.

Storey: But, is that their responsibility? I mean, is it reimbursable to them?

Ulrich: It is reimbursable to them, and that's because of the legislation. Our authorizing legislation says that the power customers will pay for everything that is part of O & M, part of Operation and Maintenance.

Storey: At Hoover?

Ulrich: At. Hoover. And . . .

Storey: And, is that also true at Parker and Davis?

Security at the Lower Colorado River Dams after 9/11

Ulrich: Parker and Davis are similar. They're not exactly the same, but for all practical purposes you can think of them the same. (Storey: Uh huh.) Another controversial piece that we are encountering now is security. If you, if you recall the commissioner, after 9/11, said, "You know, we have to beef up security, and it's because of terrorism." And because it's a federal, he felt it was a federal obligation that we beef up our security for anti-terrorism. He didn't think it was appropriate to pass those costs on to the water and power users. It was more of a U.S. obligation. And so, he did, he set a policy that said, "All security costs that are above and beyond the normal security that we, that we would do under typical O & M would be through appropriated dollars and non-reimbursable." That policy is in place today, but will change in October of this, of this year. So, fiscal year '05 will be the first year that he said, "Well, we've done this long enough now, I'm going to change the policy and all of the, what we call 'guards and surveillance,' those, those costs that are funding people or contracts to guard and look, and surveil, those costs are going to be part of regular O & M. And so, however regular O & M is paid for, that's how those costs will be paid for. So, it's a change in the policy. And, for us, it means that these power customers heretofore had not paid that extra security cost. Starting in October they will. We have told them that, and we've told them how much it is, and it's roughly $4 million a year at Hoover.

They obviously would like the other, the other policy. They would like to stay with the other policy. The commissioner has said, "I'm sorry, but, you know, we can't, we're looking at big deficits in the country, and we are not going to, we just can't keep funding that. It's a regular part of O & M. You're going to have to do that." Now, he recognizes that they have other avenues, and they are pursuing those. So, Congress may decide, "No, it's still a U.S. obligation to really fund that," and put it in legislation that way. And, and then we would, we would go back to the way we had it. But for now, our policy is, starting in October, that they will fund. They've

said, "We really don't want to do that." Unanimously have said, "We really don't want to do that." And, we've said, "Well, we appreciate your opinion and, you know, we've considered it, and we're still going to do it." So, that, that is, I said it's conceivable, and I guess we actually have.

Storey: Right there's an example. (Laugh)

Ulrich: There's an example. I forget about it, because we haven't actually done it yet. (Storey: Yeah.) October is the first one. And, that's because we still have the obligation. I mean, we would be negligent if we didn't keep the security in place, in this time of conflict. And, so we certainly couldn't back off on security. It wouldn't be responsible for us. And, we're not going to do that. And, if they get legislation that says that the U.S. will continue to pick up that cost, then I'm sure, you know, that's what we'll do. But, until then, we'll stay with the policy that the commissioner has set. (Storey: Uh huh.) So, we'll just have to wait and see how that, that goes. And, I guess we'll find out fairly soon, because October is fast approaching. (Storey: Yeah.) So.

Storey: You mentioned earlier that Hoover's mostly a power facility as opposed to a water-delivery facility?

Ulrich: Right.

Storey: So, that must mean, what, that the Yuma Office is responsible for the water delivery downstream?

Water Deliveries on the Boulder Canyon Project

Ulrich: The water deliveries are kind of split between two offices, I think. It's the Boulder Canyon Operations Office, here in the Region, and the Yuma Area Office. And, they're the ones who take the water orders from those districts that have water contracts, and determine what has to be released to put to beneficial use. They give us those, those targets. And we then take those targets, and have to meet those on, at Hoover, on a monthly, on a monthly schedule. So, they might say we have to release a million acre feet this, in May. We could, we could choose to release that evenly over the thirty-one days in May, or we could release it heavily towards the latter part of the month, or heavily towards the beginning of the month, or heavily in the middle of the month. I mean, there's all kinds of combinations. We're allowed to, because of the reservoir size that we have, we can do that and not, and not violate any water constraints. So, we release based on when those power customers really need the

power.

Now, if there would be a conflict of any kind, let's say that we want to release heavily towards the end of the month, and for some reason that would be, maybe the reservoirs are in a condition where that would, that would mean somebody would either not get enough water or get too much water, that would take precedence and we'd have to, we'd have to conform the power releases or the power generation to match those water, those water deliveries. I've not seen that really happen. We have enough flexibility where we can just about strictly work on power demands at Hoover. That's not true of Parker and Davis. Parker and Davis are, have smaller reservoirs, and there's no reservoir below, below Parker, so once it's released that water is, I mean it's on its way to somebody, and if you don't pull it out it goes to Mexico, and into the Gulf down there. So, we don't want that to happen. We don't water being wasted. So, we're really pretty well constrained at Parker, and somewhat at Davis. So, if you work your way upstream, Parker has very little flexibility, Davis has a fair amount, and Hoover has just all kinds of flexibility.

Storey: But, the reason, correct me if I'm not thinking right, the reason Hoover has so much flexibility is because we have Parker and Davis that can catch the water that's released?

Ulrich: You're thinking right.

Storey: And they're big enough that they can accommodate that? Is (Ulrich: That's. . .) am I understanding that correctly?

Ulrich: That's right. That's right. And, we have Mead that is large enough where we can release more than–I mean, we don't have to store it all, all up there. (Storey: Right.) So, you're entirely correct. (Storey: Okay.) It's because of those reservoirs that we can do that.

Storey: And then, is there a flexibility, for instance, also in the fact that–let's see I think it's the Colorado River Aqueduct that goes to Los Angeles, is that correct?

Ulrich: That's correct. Uhm-hmm.

Storey: And, the Central Arizona Project that they can, do they have flexibility in how much they suck up also?

Ulrich: They do. I mean, depending upon time of year, time of day, all that kind of stuff, but

they do have flexibility. Between, just rough, rough figures, between Metropolitan Water District's Colorado River Aqueduct and the Central Arizona Water Conservation District's C-A-P [Central Arizona Project] canal, between the two of them they can take about 5,000 cfs out of the river. Parker can pass about 20,000 cfs. So, between those three, those three facilities they can take about 25,000 (Storey: Uhm-hmm.) cubic feet per second. And . . .

Storey: A lot of water.

Ulrich: It's a lot of water. Yeah.

Storey: (Laugh) Well, you anticipated one of my questions. One of the, one of the things I was interested in, you know, when you have this meeting of our customers, (Ulrich: Uh huh.) I presume they aren't all taking equal shares of the electricity?

Ulrich: No.

Storey: Is that somehow recognized in these discussions? If it comes to a formal vote, does he get twenty-two percent and he gets ten, or how does that work?

Power Distribution Among Power Customers

Ulrich: You know, we've never, I'd have to go back and look at the Implementation Agreement, should that ever, ever happen. We have, we have such good relationship right now that we almost have unanimity on every decision. And, and it comes to, it really, everybody has the same interest at Hoover. They're all there for power, power purposes. They all are from electric service contractors, so there's no difference in the type of contractors. So, everybody really has a very common interest, and that makes it easy in those decisions, because with everybody having the same interests, the only way you could have a difference of opinion is if you didn't, you want the same result, but you just think, I don't know, you might dispute the assumptions, or something. But, the interests are all the same there. (Storey: Uhm-hmm.) So, and like I said earlier, Reclamation has the final say, anyway. So, it doesn't, we're going to do what we think is best. Now, we're certainly going to listen to all the, all the parties, and we're going to consider everything they say, because we want to make good decisions. And, so we really have the final, the final say. I'd have to actually, to answer your question thoroughly, I'd have to look at the Implementation Agreement, and see, but we've never encountered that at Hoover. Now, I can tell you, I'm more familiar with Parker-Davis because it's a more contentious group.

Storey: It's a different group?

Ulrich: It's a different group.

Storey: Oh. It isn't one big contract?

Ulrich: No. No. We have (Storey: Oh. Okay.) we have different customers at the different plants. So, at Hoover we have fifteen contractors. And, at Parker and Davis, I don't remember the number, but it's far more than that. It's closer to mid-twenties, and they're different types of customers. At Parker and Davis we have, (clears throat) excuse me, we have two types of customers. We have the firm electric service customers, which is very much like Hoover, but then we also have priority-use customers. And, priority-use customers are those, those entities that have water, water contracts, and have an entitlement to Parker-Davis power because they're a Reclamation project. (Storey: Uh huh.) They were constructed by Reclamation, and the power is there for their use in their water operations. So, they have perpetual contracts. They don't expire. Firm electric service contracts have a firm date that they, that that contract expires. And, now they may get renewed, that's a possibility, but they don't have to be. Priority-use customers, they've got that right forever. And, they tend to be irrigation districts, because that's what Reclamation really constructed initially. (Storey: Uhm-hmm.) And so their, their needs are a little bit different than some of the other, like cities and municipal water districts. So, what I was saying, at Hoover everybody has this common interest, and they're all the same class of customer, Parker-Davis that's not the case. Two types of customers, and you have different, within them you have different interests. And then to complicate things, Metropolitan Water District is entitled to half of all of the output at Parker Power Plant. And . . .

Storey: They paid for Parker?

Ulrich: Yes they did. (Laugh) Yes they did. And, and so, so they're a big, they have a very big vested interest in what's done at Parker. They get nothing from Davis, so they have no interest whatsoever in Davis. And, so what this gets me to is your question of, "What do you do on voting?" There is a, on a Parker-Davis Advancement of Funds Contract, which is similar to the Implementation Agreement for Hoover, it's called Advancement of Funds Contract for Parker and Davis. And, there's some differences, finance differences, between the two. At Hoover, it's the Boulder Canyon Project. And there's a provision, in law, for a dam fund. And so, all of the money that is, that we get advanced from the power customers goes into the dam fund, and then we pull from the dam fund to fund our operations. So, it's not part of,

it's a separate fund that's not considered, I'm going to use these terms loosely, that's not considered part of Treasury. That's probably incorrect, but for practical purposed it's not like it's going into Treasury, and we can't get it back.

Storey: And, it's not being authorized by Congress, I guess?

Ulrich: Right. So, that's the difference. Parker-Davis, we don't have that type of fund. So, everything that we get from the power customers we use right away, or it goes, because once it goes into Treasury we can't get it back. So, so there's that little bit of difference. And, so when they vote, at Parker-Davis, what they're voting on is how much they're going to advance fund, because we can still get appropriations. We don't, but we can. So, those customers have a Funding Board, and they operate similar to our E-&-O-C [Engineering and Operations Committee], but they do vote, and they have two types of votes. We vote just a regular voice vote. One vote per entity, no matter what the, what their size. But then if somebody, let's say that you get a vote, and it's not unanimous, and somebody thinks, "You know what, I think the bigger customers are on one side of the issue," they can ask for a weighted vote. And, the weighted vote, then, would be taken. And then they vote according to how much their entitlement is.

So, as an example, I think Colorado River Commission is our biggest customer at Parker-Davis, besides Metropolitan at, take Metropolitan away from Parker and just working with Davis and the other half of Parker. I think Colorado River Commission has about twelve percent or so. So, they're, by far, the biggest. And then it would be somebody like I-I-D [Imperial Irrigation District] or something like that. So, those two might be on one side, and say, "Oh. Maybe we should take a weight vote," and that way it could flip the decision. Now, what decision do they make? Just as we have the final say at Hoover, that is Reclamation does, Reclamation has the final say at Parker-Davis too. So then you might think, "Well, then why are they voting?" Well, because they could vote not to fund. That's, now we might still do it. Let's say they–we just did the gates at Parker. And, it was pretty controversial, but in the end they voted in favor and they advance funded. But let's say that became a contentious issue, for argument's sake, and they decided, "No. We're not going to fund this. We don't think the gates do us any good whatsoever. We're power customers and that's not helping the generating units." Okay, the gates are a Safety of Dams issue. We would have never let those gates just go. So, we would say, "Okay. If you're not going to advance fund," and that's would they would have voted on. They would have said, "No, we choose not to fund." Then, my job as the chairman of that board, I would say, "Okay. I'm making the decision. We're still going to do this. So, I'm going to pursue appropriated dollars. And, you won't have, you won't be advance

funding it, but you're going to pay for it."

Storey: But you will pay for it? (Laugh)

Ulrich: But, you will pay for it. Exactly. And so, and according to the contract, I have to tell them if I'm going to do that. And, the reason for that is so they know, "Oh, he's still going to go ahead with it, so I want to talk to my congressional delegation, because I want them to know I don't think he should be doing that." And, and then it becomes a matter of who has the best story, I guess. Now we, that being said, we've never entered that situation. We have had non-unanimous votes. We've had some votes where parties have not, have gone the other direction. We've had some where they called for a weighted vote, but we've never had any yet where I chose to override the whole thing. In the end, they've always come around. So, so we've, even though it's a little more contentious group it's getting, it's getting easier. We're developing trust in one another as we, as we proceed, and it's becoming easier and easier. (Storey: Uhm-hmm.) Just as it did at Hoover.

In the early days of the Implementation Agreement, it was a contentious bunch. And, in fact, one of the things they, the power customers, tried to do was get legislation to take over operations of the hydropower facilities. They were not successful, but they came close enough where it scared the heck out of, out of everybody in Reclamation. And frankly, that's how we got to the point where, "Let's figure out what's going wrong here, and figure out why we're not all on the same, the same page." (Storey: Uh huh.) And, and now we're doing a much, a much better job in getting along. And, I think it's mostly communication, and the willingness to listen and analyze new ideas. So.

Storey: So, things are fairly smooth now?

Ulrich: They are. Uhm-hmm.

Storey: Do we provide peaking power?

Ulrich: For the most part, we provide peaking park at Hoover, and to a large extent at Parker-Davis, but at Parker and Davis we do have minimum, minimum requirements, whereas we don't at Hoover. We can actually stop generating at Hoover for short periods of time. We can't do that at, at either Parker or Davis. At Davis we'd have problems with the intakes at Mohave Generating Station. If we didn't, if we didn't release 2,000 cfs the water level would drop below the intakes for Mohave Generating Station.

END SIDE 2, TAPE 1. JUNE 15, 2004.
BEGIN SIDE 1, TAPE 2. JUNE 15, 2004.

Storey: This is tape two of an interview by Brit Storey, with Timothy Ulrich, on June 15, 2004.

Mohave Generating Station isn't ours?

Ulrich: It isn't ours, but they have a water, they have a water contract with, with Las Vegas, I guess it would be either Colorado River Commission, or Las Vegas Valley Water District. I'm not sure who administers those. So, we just have the requirement, there's a water requirement that we, we release 2,000 cfs, which happens to be about a half a unit, half a generating unit, or a generating unit running at about thirty-five percent gate which we call half a unit. (Storey: Uh huh.) And that's because the most efficient gate is at like seventy-two percent or so. So, that's a, what we call a full unit, even though you could release more than that. Now, the same is true at, at Parker. And, but Parker, the reason we release 2,000 cfs or more is the river starts drying up, and so then you have oxygen problems in the river and you'd cause some, probably some fish kills and things like that, so it's more of an environmental requirement. And so, so we try to run, run a half a unit. Recognizing that that half unit is really inefficient, what we've tried to do a little bit is say, "Gee. If we, if we only have to have half a unit on line for one hour, and the rest of the time we have to have a whole unit on, or something, we may actually shut that unit down all together for an hour, but no more than that." (Storey: Uh huh.) So, we're trying, we're trying to work now at ensuring that we get the most efficient operation out of those generating units and still meet those water requirements. So we're getting, as everything becomes scarce, as water becomes scarce, as power becomes scarce, you start operating just a little bit more on the ragged edge of trying to, trying to make things the most efficient you can. And, so we're in that, we're in that era now where, you know, we just have to look at those things. And, it's becoming harder to operate all the time because the resources are being, they're just scarce, a little more scarce all the time. So. (Storey: Uh huh. Hmm.) So, becoming a little more, a little more tough.

Storey: But, you know, like on Parker, we release 2,000 cfs for basically environmental purposes. Whose water is that?

Ulrich: Two thousand cfs can always be put to use. They can always, there's enough flexibility in the river, I guess, where it, it gets used. We don't have to worry about wasting it. Now, one of the reasons that, for Senator Wash, which is not one of my

facilities but was to take things like that, where you had to release for some other reason, and you didn't want to waste water. So, Senator Wash is a pump-storage facility. They can put water up into, into the lake when it's not needed downstream, and then release later. And, it still functions, to some degree. It's greatly, its value has been greatly reduced because the elevations, its operating elevations have really narrowed because of seepage, and stuff. And, I'm not familiar with that. All I know is the operations are more restricted. But, but that is one way they can take those little bit of swings out of there.

Storey: Huh. Okay.

Ulrich: So.

Storey: Interesting.

Ulrich: Yeah. Gary might, I think you're going to talk to Gary . . .?

Storey: Tomorrow.

Ulrich: Tomorrow. Yeah. And, Gary was area manager down at Yuma so he might, that's a Yuma project.

Storey: Senator Wash?

Ulrich: Yeah.

Storey: He'll talk more about that?

Ulrich: Yeah.

Storey: Let's talk about labor, at Hoover. (Ulrich: Uhm-hmm.) You know, we have a situation that's a little different than what many area managers have to deal with, in the fact that there's a union there, and so on. (Ulrich: Right.) Could you just talk about that?

Labor Unions

Ulrich: Sure. We have a union at, at Hoover. It's the A-F-G-E, American Federate, American Federation of Government Employees, I think, is what the title is, and it is a bargaining board. So, they actually have the authority to negotiate wages. And so, so

they help determine the wages that we pay bargaining board employees. So, all of our trades: hydroelectric mechanics, electricians, operators, laborers, utility men, they're all what's classified as "bargaining board," meaning we bargain for their wages. And, so each year, or each contract period, it's usually each year but we have negotiated three-year contracts in the past. I personally like those because I don't like coming to the table every single year trying to negotiate wages. It's a contentious issue, as you might, as you might imagine, you know, when you're talking about pay, everybody gets excited. And so, I like three-year contracts myself, and we've done a number of those, but anyway we do negotiate those wages. They have, there's also now a G-S [General Schedule] union. Same union, A-F-G-E, but there's a G-S contract. So, those employees who are general schedule employees can be represented by the union if they choose.

And then at Parker and Davis we have I-B-E-W, International Brotherhood of Electrical Workers. So, I've got a different union down in those, in those two plants, and we also negotiate wages with that union. All of our, we're big into partner shipping. I think it was under the, well under the Clinton administration that was pushed really heavily, and we're still, still in that mode where we're trying to recognize common interests, and inform one another of what our interests are, and then we try to make sure everybody gets their, their interests covered. And, the decisions that we make, we try to involve all the people who are going to be affected by the decision, so that's kind of the philosophy we follow.

We've had a fairly decent relationship. It's changed over time. For a period of time it was almost, I would say, co-management, which is not legal, but it was to the point where we were taking partnership to an extreme back in the, well, when I first got to Hoover. And, we had two full-time union, a union president and a vice president that did nothing but union business, and we paid their salaries as union officials. We no longer have that. We don't have any union official that's full-time union. They're all just working off of a number of hours that we set aside for them. That was greatly inefficient, from a management standpoint. It's something that I really worked hard on, on getting rid of. (Storey: Uhm-hmm.) That's not to say that, I mean, I think the union is good, and we've done some good things with the union, but it was just too expensive to have full-time, two full-time union officials that we were paying for and not getting any work out of, per se, any what I would call productive work. (Storey: Uhm-hmm.) And, so we no longer have that. And, it's a little more back to a formal relationship.

But, we get together every week with the president of the union. When I say, "we", Gary Bryant, the facility manager at Hoover, and myself, sit down with the

president of A-F-G-E and usually the vice president, but not always. Sometimes he brings a steward or somebody else. Every week we'll sit down and go through issues that each of us might have, and things that are going on, and just to keep communications flowing, and stuff. Overall, I think the morale is pretty good for the most part. I think if you look at Hoover today, versus Hoover of eight, nine years ago, there isn't even a close comparison, in my mind. The plant looks better, it runs better, our availability is greatly up. I think we're really getting a firm handle on the maintenance side. We've been doing a lot of pretty major work trying to bring things back to, into a good plant. I think it had been run down quite, quite a bit, which might have been a good economic decision. I don't want to make a judgment that, "Gee, somebody else let it go and now I'm bringing it back." That's not the case at all. You do what economics dictates during the times, and sometimes that is a good economic decision is to run something until, until you're right to the point where, "Okay now we got to do a whole bunch of stuff." And so that might have been just what happened, and now we have to build that plant back up, and then at some point they can do that again (Storey: Uhm-hmm.) and really have a really efficient, cheaply-run plant for a period of time, and then, and then they'll have to start that cycle over. (Storey: Uhm-hmm.) So, and I think, I really think, you know, Gary Bryant came in and does just a fantastic job of managing those people, and the union, and trying to get things in shape. And so, he's been a really good addition for me.

Hoover Dam Visitors Center

So, we're, we're working to constantly improve, and I think one of the things you might want to talk to Gary about, besides the labor relations, is the Visitors Center, because I had, I had an initial kind of outlook that I wanted the Visitors Center to be, to really reflect Reclamation's power and water emphasis, and not really the broader context of Reclamation. I figure, we're a water and power facility and let's emphasize that. And, Gary has taken that for me and really has jumped on that, and is working towards changing the Visitors Center to a Water and Power Technology Center, is what I'd call it. And, he has some really good plans for displays and stuff that really emphasis power productions and water, water deliveries, as opposed to what we had before, which was kind of a hodgepodge of little bit of history. And, we're still going to have, history is a big thing to Hoover, as you might suggest, and might appreciate as a historian. (Storey: Uhm-hmm.) So, that part we're going to continue and expand on. And then, the next, the next thing is, let's just talk about and have displays on how generating units really work, and how electricity is produced, and what, what types of things we consider in the power industry.

And so, those kind of displays are being put in and displacing the

environmental-type displays that–well, we had a desert wash in the Visitors Center, a little display of a desert wash that took up a lot of space. And, it's interesting, but it's not really what we do at Hoover Dam. And then there was, you know, there were different reptiles, and birds, and mammals, and stuff that were displayed. Three miles up the road, the Park Service has a visitor facility that has all of that in there, and so in my estimation we were repeating what the Park Service was portraying. And, they had a much more extensive Visitors Center in that arena. So, to me, it was kind of a waste of, for us, to repeat some of the stuff, and not as in good a fashion as the Park Service had done. So, so Gary has really stepped out there and taken on, "Yeah. I'm going to make this into a water and power display." And that's really what we're, what we're working on. He's done, he's really pretty far along in that. And, we're going to get that all switched out, and hopefully we're going to draw people back, because our visitation is down quite a bit since 9/11, which is affecting our cost of production because what, if we can't pay for the visitor facility through visitor fees, then the power customers have to pick up that cost. And they've been picking up $2-$3 million a year now, since 9/11. So, I think once, once we get that Visitors Center back, established as a real, a real water and power orientation to it, I think we'll start getting people back and more coming in.

Storey: How about the nature of the tours?

Ulrich: The nature. . .

Storey: Hasn't that affected it too?

Hoover Dam Tours

Ulrich: Yes, it has. It has. And, that's another reason for trying to beef up the exhibits, because the tours, before 9/11, we had three basic tours. We has something called an exhibit tour, which all you got was into the Visitors Center, and you could look at the exhibits. And then you got a traditional tour. You got into the exhibit building, plus you could take the plant tour, the traditional plant tour which brought you into the plant. You'd go out and look at a penstock. You'd go out onto the transformer deck, walk out, look up at the plant. You got down next to the station service units, and you, they could talk about the station service, and things like that. And it was, that tour took about thirty-five minutes. And then we had hard-hat tours, which took about an hour to an hour and fifteen minutes, and they actually took them through the, through the turbine galleries, out to the, to the bypass valves, the tunnel plug, and then up the main part of the dam into inspection galleries.

All of that was stopped after 9/11. And, the only thing you do now is you come down into the plant and you get to what we call the fifth floor balcony, and you go out there, and it's caged in now. You can't, you can't go any further because we built a cage. So, you just look over the generating units, and then you go back out again. So, your tour was cut in half. The traditional tour was cut in half. There is no hard-hat tour. And, we did away with the exhibit tour, because with the traditional tour cut down so much, it's essentially an exhibit tour. So, all of that really, our visitation dropped from a little over 1.2 million in 2001 to about 800,000 in 2002. And, we're now, this year, the projection is by the end of this fiscal year we'll hit about nine hundred and, I think 950,000. (Storey: Uhm-hmm.) So, to give you an idea, 700,000 is what they put, 700-750,000 people is what they put through Hoover for the past twenty years, from say 1975 to 1995. That's all they could get through, because there wasn't the Visitors Center, new Visitors Center with those two big elevators. They had to come in the plant, or the, yeah, the dam elevators. And, that was their capacity. So, they could never get above the seven-hundred-and-some thousand people. The Visitors Center elevators are much larger, and so we were able to get the 1.2 million. I mean, as soon as, as soon as we got those elevators in and started bringing tours that way visitation [snap] jumped just like that to about 900,000, and then a million. And then we just kept going up. Then we hit 1.2 million when 9/11 hit and, of course, then we closed for period of time. So, so we didn't have any visitation for about three months. (Storey: Uhm-hmm.)

And, we never have come back, because of the different tours that we just were talking about. And, we didn't change exhibits or anything, so people have seen, seen the exhibits. And, although I think it's still, we still get really good comments on the tour and stuff, because it's an impressive structure, just going down. Not even taking a tour, you can't, you cannot be unimpressed with Hoover Dam, in my–if you're impressed with Hoover Dam I don't know what your, what your priorities are, but . . . (Laugh) So, so anyway, we're going to redo the exhibits and I think that'll pull some people in. I don't know if you heard about the Penstock Re-enactment Tram that we're proposing?

Storey: Hmm uhm.

To Help the Public Understand the "Enormity of the Project"

Ulrich: We've, and some people have, you know, said, "Well, that's the craziest thing." But we're, there are a couple of things that are important to us. One, we want to impress upon people the enormity of this project. I mean, the Boulder Canyon Project was an enormous project for its day, and, and you still get that feeling just looking at the dam,

but you're losing some of the perspective because we no longer do the penstock tours, or get out onto the transformer deck. So, you don't really, you get the feeling from the top, and that is one sensation, but when you're in the structure, and you're looking at, you're standing over a thirty-foot diameter penstock, and you can see how much water that must, that must convey, and then you're out on the transformer deck looking up at the enormity of the dam you get an entirely different perspective, I think, than what you get today.

So, one thing we want to do is reintroduce the visitor to just the enormity of the project. And, one way is the penstocks. The penstocks are thirty-foot diameter pipes that convey the water, and we've got four of them, and they were all lowered in using the existing cable, cable way that we have today. There were about nine or so cable ways during construction, but they kept the main cable way for O & M purposes after construction was completed. So, and that one was the main one that they used to lower the penstocks in. And, we have a lot of footage that shows how they did that. I mean, that shows a penstock piece about twenty foot in length, thirty-foot in diameter, being lowered down into the canyon, and there's even, you know, people rode that load. So, there's people inside the penstock riding that thing down to be put in place. So, one of the–years back, when I first came to Hoover as the manager, in '96, it was shortly after that a company came and said, "You know, we'd like to put, we see your cable way, we'd like to put a gondola on there. And, we can guarantee you a million dollars a year. And, I said, "Well, you know, that's nice, and I sure could use the money because the Visitors Center needs to pay for itself, but that does not fit in my scheme of things, and what Hoover Dam is." And, so I said, "No. I'm not going to consider that." And, oh they came back again and said, "Well, why don't, what do you have against it?"

Storey: (Laugh) "We'll take care of it."

Ulrich: Yeah. I said, "Well it doesn't." I said, "We're here for two reasons, in my mind. One, we want to introduce the American public to the tremendous feat that was accomplished with the construction of Hoover Dam, and give them a sense of the history of that. And, and the other thing is, I want to convey just what a power production facility is, and how we benefit the Southwest and the United States." And so they said, "Well, so if we could make it historical you might consider that?" Of course, I'm the, said, "Yeah, if you could figure out how to make it historical I'd probably consider it." And, I hadn't heard from them again, until, oh then it was about maybe three years ago. And, all of a sudden they come back and they've got a whole presentation. They really did their research, pulled film from the old clips and stuff that, during construction, and they designed a penstock that would be exact

scale-model of the penstock. Wouldn't have the same thickness, and weight, but it would be the same dimensions. And, they were going to put, and they are put people in there. The only difference is, in this hollow penstock, rather than have the tie rods across the ends keeping the, you know, the cylindrical shape during, during the, during lowering it in, they would put three different, I think it's three levels in there, maybe it's two, where people could sit. And, the ends would be, would still have the ties like the originals, but they'd also have a mesh so you couldn't fall, couldn't fall through, and there would be a place to board this thing. And, so, they actually have, it looks like you're bringing a penstock out to be lowered into the canyon.

So, I looked at that, and Gary, by then Gary was here as the, as my deputy and the facility manager at Hoover, and Gary said, "You know, I think this is really something that could improve the tourism and really provide a sense of just how magnificent this structure is, and what an accomplishment this was." So, he really pushed, and I have to give him credit. I said, "Yeah. Okay. Let's run that through." So, we talked to the regional director, and Bob looked at it and said, "Yeah. You know, that might, that might be kind of nice." He says, "I'm just concerned about, about does it fit the image of Reclamation? I mean, we don't want to be an amusement park." (Storey: Uhm-hmm.) And, of course, that was my initial concern too. And, we talked about it and we said, "Well, why don't we do this. Why don't we do some focus groups, see what the public reaction would be, and then if the public reaction is pretty good, let's run it through, through Washington and see if they'll go along with it." So, that's what we did. We set up some focus groups at the dam, for people visiting. Plus, we brought in one or two groups of just locals, saying, "Here's what we're thinking of doing." And, for the most part, it was really positive. There were some, there were some negatives. There were some that said, "Well, you know, that seems kind of like you're putting a ride in, and you're really making it more of an amusement park." And one of them, you know, I think you must know Dennis McBride?

Storey: I know of him.

Ulrich: Okay. Well, I don't know him personally, but he was on one focus group. And, Dennis was, was the most critical. He didn't think that was the right thing to do. But, everybody else, for the most part, was pretty positive. So, we took the results, and summarized it, and sent it on to Washington. And, we just received word–well, the commissioner talked to me at the area manager's meeting and said, "We're going to approve this as a trial. So, we want to make sure that it's the right image and stuff. And so, what we'd like to do is, do a three-year trial period. If you can get somebody to come in and do this for three years, and we can see what the reaction is and stuff,

then we might, we might keep it. Or, we might say, 'No, that was a bad idea and we're going to not do that.'" (Storey: Uh huh.) So, I haven't received the official, the official memo yet but it looks like we're going to at least give that a try, and now it'll depend upon if the company that wants to do this thinks it can get its payback in that three years.

Storey: Yeah. Or whether they're willing to gamble that (Ulrich: Or, yes) They'll be able to stay longer?

Ulrich: Right. Right, and, so I think we're going to at least see this tried. And . . .

Storey: They're thinking of, in effect, giving them a ride in this piece of penstock? (Ulrich: Uhm-hmm.) Are they thinking of dropping it?

Ulrich: No.

Storey: Just riding back and forth?

END SIDE 1, TAPE 2. JUNE 15, 2004.
BEGIN SIDE 2, TAPE 2. JUNE 15, 2004.

Storey: Okay. So, it wouldn't go up and down, I guess?

Ulrich: Right. Right. That takes away a lot of the complexity, and a lot of the safety concerns because you don't have to worry about lowering something, and having it extended, and winds, and all of that. I mean, we still have to be concerned about winds, but not nearly as much. And so, this thing will be on a fixed cable, (Storey: Uhm-hmm.) but it will look just, I mean, and we've got a presentation that you can, (Storey: Interesting.) you can have, if you want, as part of your, part of your documents or whatever. And so that's, that's something that we're going to be doing that we think will bring in a lot of tourists, and really get back what we lost in terms of people's view of just how big this place is.

Storey: Well, that will be a very different kind of perspective. Yeah.

Ulrich: Yeah. So.

Storey: Hmm. Well, let's talk about the Centennial, and how that affected Hoover.

Reclamation's Centennial Celebration at Hoover Dam

Ulrich: Well, (Laugh) that was, it turned out fine. The Centennial turned out, in fact it turned out more than fine. The Centennial turned out to be a, I think, a tremendous event, and I'm glad we did it. It was not something I would like to do again. It was, there is a couple of things. I'm a little bit, oh, not, I was a little bit ticked off, I guess, is the way to put it, because they decided to have the event at Hoover, which is fine. You know, we said, "Yeah., that's probably appropriate. We don't mind that, and we'll do whatever we can." But then, it was, there was as group that was doing, doing the planning and stuff, and frankly I felt like we were kept out of the loop, so to speak. We kept saying, "Well, now, how are you going to do this? How are you going to do that?" And it was, it was like, "Well, don't worry about it, you know, we're, this is our project. We're going to take care of this." And we had a group that was, I mean they weren't even Reclamation employees deciding on, because it was being funded by a foundation or something.[9] And, I don't know all the facts here, but I'm just giving you my perspective as the manager of the facility. And, all of these things are going on and they're going to get, they had nice things, you know, they created this nice book, history book and stuff, and that was great. And, we were going to get, put a coin in the bags. You get a bag and a coin, and all this stuff. And, they were going to cater dinner on the power plant floor, and stuff, and, and we were thinking, "Well, is a catered meal really the–this is a power plant, and is that really the way to go, or would it be better to have more like hors d'oeuvres, or sandwiches, (Storey: Uh huh.) or something like that that would be a little easier?" "Don't worry about it. You're, just stand back."

Storey: That sounds like Harvey.

Ulrich: And, well, I think to some extent Harvey was even kept out of things. But, yeah, we were not, I mean we just like, "Well, hey. What do we have to do? What do you want from us?" "Don't worry about it." (Storey: Huh.) So, this thing is planned and all of a sudden they're having caterers come in with, I mean they're going to have this grand meal and stuff. And, so, anyway, by the time the event takes place, all of a sudden I don't know where the organizers are. And now, it's, "Well, where do we, where do we put this?" "Well, I don't know." "Well, you're manager here." (Laugh) So, and . . .

Storey: Oh my.

Ulrich: And it was, "Well, gees, we need . . ." and they had this big event up in the Visitors Center for the V-I-Ps, for the big donors and the special guests and stuff, and so. And, I'm down in the plant. I haven't been able to go home. The event's going to

9. The Bureau of Reclamation's Centennial Celebration was sponsored by the Water for the West Foundation.

start at five thirty, or something. I can't remember the time, and I get off work, generally, about, I leave between four and four-thirty, somewhere in that area. So, I'm, I'm not even dressed for the event. I mean, I have to go home and stuff. About that time people start asking, "Well, gee, we need help up in the Visitors Center. We can't get anybody to do this or that, you know." Well, my god, so now I got to get maintenance on the line, and get somebody up to do this. Well, then Bob Johnson called. "So and so from S-R-P," or whatever, "called and said he's not getting cooperation. What's going on down there." "Aw cripes." So now I personally go up and take care of the things. And, the long and the short of it is, I never did get home. I mean, I just stayed at the plant, and it's . . . ah. It turned out good though. The meal, they had people on the balconies, all the V-I-Ps on the balconies, and everybody else on the power plant floor, and but they crammed the tables in so tightly on the balcony that you couldn't, people couldn't get in and out. I mean, I don't know what they were thinking. You don't just sit at a, at a table with your chair pushed in, you know. (Storey: Uhm-hmm.) I mean, sooner or later you got to, you got to push back.

Storey: Got to get up and move?

Ulrich: Yeah, you can't have two chairs like this, pushed into the table, and no space between. Anyway, so they cram them up there, and then I got a call that, "Well, somebody's sitting in the governor's spot." "Uh, so what do you want me to do?" "Well, we got to take care of this somehow." And, now how did I get involved in all of this, you know?

Storey: (Laugh) That's what I'm wondering.

Ulrich: How did I get involved in all this?

Storey: How did you get involved in this?

Ulrich: And so now I've got figure out how to get this person out of here and get the governor in. And so, so I did take care of that. Got that done. And then, then the general manager for Wellton Mohawk, somebody comes and says, "He's really, he's really pretty, pretty irritated that he isn't, he isn't, I don't know, seated in the right place." He's down in the lower section. He should be in the V-I-P. Okay. So, I go and talk to him. He says, "Yeah. I should be in the V-I-P section," and stuff, and I said, "Yeah, you should be. I mean, general manager of Wellton Mohawk, one of the sponsoring entities, I don't know why you're, why you're down here. Come on. I'll get you up there." So, I get him up there. Well, by now, I mean, I had called my wife and said, "I can't, I can't come home. You're just going to have to come down on

the, on the bus, and I'll meet you down here." So, she gets down. I do see her. So . . .

Storey: At a distance, I guess?

Ulrich: Yeah. At a distance. I said, "I'll, you know, I'll be with you. I just need to do a few things. And so, I'm trying . . ." Long. Long and the short, I never got, I never got to eat. Never did get to join my wife at this thing. So then, then the fireworks started, and now they're, "Gees, we're running out of water. So, what are you going to do about water?" "Well hell, where is the water?" "Well, it's already gone." So, now we're bringing, of course we have water at the, I mean, big bottled water. So, we decide, "Okay, let's get some folks and we'll go up and get the big bottles of water, break out cups, and we'll put these bottles of water around." And so, so we did that. And, I did hear the young, the young lady sing the National Anthem. I got to see that. (Storey: Uhm-hmm.) And, then, when I was going to get something to eat, they ran out of food. Everybody else was outside. I thought, "Okay. I'll just get something to eat." They ran out of food, supposedly. So, I couldn't eat. So, okay. So then, I just gave up on that. Everything's done. We get everybody out. And, I look, and here these caterers must have had, I bet they only put out half the food. The other half was sitting on the machine shop floor, I mean not on the floor, but on the, (Storey: Yeah.) in the area where they were cooking it, just sitting there going to, going to waste. (Storey: Yeah.) And, the next day–it took us a week, that plant was so, ugh. It was so disgusting that all this food was left. I mean, you know, this was June 17. This was like today, 100 and some degrees, and you just walk away from all this food. What do you think that, that smells like in twenty-four hours?

Storey: The caterers didn't clean that out?

Ulrich: No. We cleaned up all of that stuff. So, so my experience with the Centennial was, "I'm glad you had a good time (Laugh) but I didn't, you know." (Laugh)

Storey: I had one very similar to yours.

Ulrich: No. I don't mean you. I mean, (Storey: Yeah.) people have said, "Oh, it was great." And, I'm glad. I really am glad that everybody had a good time because I was afraid that, everything I saw was the bad (Storey: Yeah.) thing that was going on.

Storey: All the crises?

Ulrich: Right. And so, I am really happy that everybody had a good time. And, I haven't

had, I've had a number of people say, "Oh yeah, I didn't get fed, but it's okay. It was worth it." And, I'm glad they feel that way.

Storey: Yeah. Interesting.

Ulrich: Yeah. So, so it was, every, like I say, everybody I heard from, and I heard from a lot of people, said, "Oh. It was just fantastic. Best job. The thing was great, and we really appreciate it." And, that is good. (Storey: Yeah.) From my perspective . . .

Storey: Very disruptive?

Ulrich: It was very disruptive. And, it could have all been avoided. It could have–probably, that's probably and overstatement. I mean, you're always going to have some, some crises. But, if we would have known, if we'd have been kept in the loop as to what was going on. I mean, I'll, my employees packed all those bags, in the end, because . . .

Storey: Oh yeah. That's right.

Ulrich: Yeah. But, they didn't know they were going to be doing that. No one had said, "We're going to need these bags packed." We kept asking, "Are there things you want us to do?" "Don't worry about it."

Storey: Hmm.

Ulrich: So. So, I was not happy. (Laugh)

Storey: And, I understand that, that night we had every unit running?

Ulrich: No. We did not run units from, let's see, I think it's the first four units on each side (Storey: Oh.) we shut down.

Storey: Okay. Good.

Ulrich: And, so we made sure that they wouldn't, they wouldn't start those units up, just for noise, noise effect. (Storey: Yeah.) And, the outside of the meal, and there were a lot of people who didn't get fed. Now, I had, I did get that feedback. Fortunately, no one was mad about it. (Storey: Yeah.) Everybody said, "It was, the rest of it was so good we don't care."

Storey: Yeah, we had one situation where the president of A-S-C-E [American Society of Civil Engineers] became so infuriated that he walked out. (Laugh)

Ulrich: Oh see, I didn't, I didn't know that. I didn't know that.

Storey: I ultimately had to send the commissioner on him. (Laugh)

What about 4.4? Has that affected you here at Hoover?

California's Colorado River Allocation

Ulrich: Not, not really. The 4.4 was something that was accomplished by the Regional Office, the regional director and his staff. And the only, the only way it affects us is the, are the releases. And, and actually, I think the way it has turned out even that's been pretty minimal impact to us. It's, it's a good thing they accomplished it. I think it's amazing that they accomplished it. And, really a tremendous (Storey: Uhm-hmm.) effort, but I had nothing to do with that, and really haven't been affected all that much.[10]

Storey: And it doesn't affect operations or anything?

Ulrich: Not, not really. The only thing it affects is the release schedule that we're provided by, by the operate, Boulder Canyon Operations Office. And so, to the extent it affects releases it affects us, but we wouldn't know that. I mean, we just take what, they say, "Here's what you need to release this month." and that's what we, that's what we do.

Storey: Do we ever have a situation where they want more electricity than we can produce?

Ulrich: Not really. They, because they know what we've got available. They know . . .

Storey: So, they plan it that way?

Ulrich: Right. Right.

Storey: I'm with you. (Laugh)

Ulrich: So, now, I'm sure they would say, "Yeah, boy we wish you had more, because we'd

10. For more information on California's 4.4 Plan, see Colorado River Board, "Colorado River Board 4.4 Plan: Californians Use of Its Colorado River Allocation," Draft, December 17, 1997, www.sci.sdus.edu/salton/CoRiverBoard4.4plan.html (Accessed September 9, 2013).

like to have more." but they know what we're, what we've got. Each month in advance they know what that target is, what that means to them. So, what does cause them some problems is, sometimes mid-month we have to change the target, because well, you're, it's all based on water demands. And sometimes water demands change based on, based on weather. Even in the Southwest, occasionally, we'll have a rain or something down, down in the Yuma area where most of the water goes, and they'll cut back on water orders. (Storey: Uhm-hmm.) If that takes place, they change the target. And so now, our power customers are either, "Oh wow, we don't have as much as we thought," or in the other way they're anticipating that they won't need as much, and then they change the target saying, "We do need some more, more water this month." And then it's the other direction. And, they don't like that either, even though it creates more power for them at the time, it's a last-minute thing and they're saying, "Well, gees, yeah, we can use it, but we weren't planning on it. We already, we already have everything in place to provide our needs. (Storey: Uhm-hmm.) Now we got to back off something else." So, they don't like those changes. And, they're pretty minimal. We don't have that a lot. But, once in a while that'll happen, and that's one of those things. But it's, I mean it's, you know, it's hydropower. It's a river. (Storey: Yeah.) And, those uncertainties are part of, part of living. So.

Storey: What else should we be talking about?

Ulrich: Oh gosh, I don't know. I'm pretty well, I'm pretty well talked out here. (Laugh)

Storey: Well, we're right on schedule.

Ulrich: We're right on schedule. Yeah. (Laugh)

Storey: I can't think of anything else either. So, I'd like to ask you whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers?

Ulrich: Yeah, I guess so. Even, even though I probably said some things I shouldn't have on the Centennial. (Laugh)

Storey: No. I don't think so. You didn't hurt my feelings anyway.

Ulrich: Okay. (Laugh)

Storey: Probably what we might do is, before you retire, (Ulrich: Uh huh.) try and do a final interview?

Ulrich: Sure.

Storey: That kind of thing?

END SIDE 2, TAPE 2. JUNE 16, 2004.
BEGIN SIDE 1, TAPE 1. DECEMBER 15, 2004.

Storey: Tape one of an interview by Brit Allan Storey, senior historian of the Bureau of Reclamation, with Tim Ulrich, at about ten o'clock in the morning, on December 15, 2004, in the Regional Offices of the Bureau of Reclamation in Boulder City, Nevada.

Why don't we talk today, Tim, about how the, what you found when you came to be the area manager at Hoover Dam?

The Condition of Hoover Dam in 1996

Ulrich: Oh. That's quite a while ago, but still pretty vivid in my mind. (Laugh) (Storey: Uh huh.) That was in February of '96, and we had, we had been going through–this was part of the Clinton administration–Re-Invention of Government.[11] And, I believe that was a vice presidential initiative. And, as part of that, before I got to Hoover, they really went on a route that was quite bold. They decided to take a power plant, a large power plant, and manage through self-directed work teams, and to use, oh, I guess something, something called–well, it was self-directed work teams, and they used coaches instead of supervisors. So, they wanted to take the supervisors and managers out of the organization. (Storey: Uh huh.) And, as such, they went to this, they, I think they called it Black Tuesday. This was before me, now. (Storey: Uh huh.) And they . . .

Storey: This was when Blaine Hamann was there?

Ulrich: This was when Blaine was there. And, they decided they would abolish the supervisory positions. That's foreman as well as, in that time I think they were called division, division heads. (Storey: Uh huh.) They did away with all of that. And, essentially they, they came up with this idea that they would manage with the use of what they called a coach. And, the coach did not have to have any technical expertise in the field. So, you could have a coach of electricians, as an example, a coach of

11. Reclamation published Commissioner Daniel P. Beard's *Blueprint for Reform: The Commissioner's Plan for Reinventing Reclamation* in 1993 as one of the vehicles for his reorganization of Reclamation in 1993-1994. Another of the vehicles was the "Commissioner's CPORT team report–"Report of the Commissioner's Program and Organization Review Team" which Reclamation also published in 1993.

electricians was a former clerical worker. And, and so you were trying to, and their job was just as you'd see on a, I guess on a sport, where they felt their job was to encourage, to get the training that the people would need, and they would have to rely on the crafts themselves to tell them what training they thought they needed, because the coaches were not technical, technically capable of making those types of decisions. But, they would go ahead and procure the training.

And so, they tried to manage that way using coaches that were, I think they were supposed to be graded at GS-12, eventually. What they did was they promoted, I would suspect, a lot of good clerical staff that were really competent in their jobs, and decided, "Oh, you can do this, this task as well, and this will be a career ladder for you." And, they'd get all these, all these accolades for–because the big thing was, do away with the lines of supervision as much as possible, have as few supervisors as possible, fewer layers, provide career ladders for people, bring in diversity. It was a grand goal, and it was a, I really mean it was a bold move, because you had to have the confidence in yourself that you could pull this off. I mean, you're taking, at that time there were, I think, 350 employees at Hoover Dam. And, you're going to have an organization where you, as the area manager, are going to be the only manager on the project. And, you're going to rely on your coaches and your technical staff to hold that up for you.

And so, you have to have a great deal of confidence in yourself, I would think. Now, you know, (Storey: Uhm-hmm.) I didn't make this move, so I'm just kind of reflecting on what I saw. And, I think Blaine did have, he certainly was technically competent, and he had been a manager for a long time, so I think he was pretty confident, "I can pull this off." And, I actually applaud him for making the attempt. I mean this was, this was truly a gutsy move, one that would be way beyond me. I would never had made that move. I wouldn't have had the, I wouldn't have had the confidence I could pull it off. (Storey: Uhm-hmm.) But, in his defense, he made that move, he followed through with it, and so what he ended up with were about–and I don't remember the exact number–but there were probably between eight and twelve coaches. And, then there were no real supervisors. They had technical experts that the coaches could talk to, and those would be your former, former foremen, and division heads, and stuff. And, then you had a deputy area manager, and an area manager. And they, they put in place a re-invention specialist, and all kinds of things. I mean, they really went all out. And they, they had books–when I came into the area manager's office, the bookshelf, instead of seeing S-O-Ps, Standard Operating Procedures, and technical books, and stuff, you saw organizational material: Managing With Teams, How to Organize for Performance. All of these texts.

They went into this thing in a big way, and they–I mean, it wasn't something they said, "Oh, let's just try this." I mean, they really did some planning. They did some working with the union. And, and all, besides the vice presidential initiative of Re-Invention, Hoover had been experiencing, for a number of years, a, pretty much of a clash, from what I understand, between the union and management, and they were incurring large, large amounts of expenses for grievances, and what have you. Because, they were just at odds with one another. So, those were the reasons that Blaine chose to, in my opinion, that he chose to take these actions. And, that's purely an opinion on my part, because I never talked to him and said, "Why did you do this?" (Storey: Uhm-hmm.). So, so anyway. And, I'm bringing that all in not as a criticism or anything of Blaine, just trying to set the stage of how I came in the door. So, so they had all of these coaches. And, what had happened, and again in my opinion, I think some people, as you would expect, took advantage of that, and others worked their tail to the bone trying to make it work.

So, what you ended up with, say you have a crew, and you've got, let's give the benefit of the doubt and say you got eighty percent that are really, "Well, we're going to do our job regardless of whether we have supervision or not." And, then you've got–and I'm picking these numbers. There's no, I haven't done any measurements or anything–say, twenty percent come in and say, "You know what? I don't have a supervisor, these guys are doing the job, well I'll putz around here for a little bit. You know what? I think I've done enough for the day, and call her quits." And, I actually think that, towards the end, when they called it quits they actually went home. (Laugh) So, I think there was a lot, there was quite a few people that may have been putting in quite a few less than forty hours (Storey: Uhm-hmm.) per week.

Well, anyway, what happens, of course, then, is you get these people who are, I mean they're, Reclamation's full of dedicated employees, and so they're trying to make this thing work. But, they're trying to make things work with only part of the staff that they need, because the others have elected to kind of ride that little coaster. So, if you're one of those people that are really working, you're going to start getting pretty doggone ticked off, when you're working down there putting in a full forty, or maybe even forty-five because somebody is putting in five. And so, you're pulling their weight. They're getting paid, and they're off playing golf and whatever they do on their, on their spare time. So, anyway, letters started to get generated, and I only saw a few of those by accident, going through files. So, I'm not even aware of all the letters, although I've heard there were a number. But, the ones that I did, did happen to see, were to the power customers, and to, I think there was some to some congressionals, and maybe even to upper management in Washington, that "By God, nobody's, nobody's running this place. And, what are you guys, what are you guys

doing? This thing is out of control. There's no supervisors down here. There's, everybody's doing what they want. People aren't putting in their time. They're not following safety." I mean, it just went on, and on, and on. And, whether that was true or not, I can't say.

All I can say is, you know, I happen to see a few of those, those letters left in the files. And, just the knowledge that things, things weren't going well, because when I talked with Bob Johnson about coming down, in fact he approached me and said, "Would you willing to go, go down there?" In fact, actually, Larry Hancock talked to me a few years earlier and said, "Would you be willing to go down as a deputy?" And, at that time I was the area manager in California. And, I thought about it, and I'm not a, I didn't know if this thing could work or not, and I'm not a, I didn't feel I was a strong enough manager, if it wasn't going to work, that I could turn it around as second, as second fiddle there. So, I said, "No, I don't think I can do it." And so, I didn't go down then. Well, when Bob became R-D [regional director] he approached me again and said, "Look, Blaine's getting kind of, kind of exhausted. He has done what he can. He'd like to come up to the front office. I could use somebody up in the front office to look over the engineering and the power side of things. Would you be willing to go down as the area manager?" And, he said, since I have Blaine in the front office, or would have Blaine in the front office, it would be a lateral, because I'm not going to give you a fifteen down there, when I still have somebody up here as a fifteen. But, if you do real well, and you manage to turn it around"–or not, maybe not turn it around. Maybe that's to strong a term–"but if you manage to calm things down, you know, maybe we can talk about it." So, so it didn't take me a second, at that point, because just the, just the idea that I could be the manager of Hoover, and Parker and Davis, was enough, my ego was, was enough to say, "I'll do that." (Laughter) If he had said, "You have to take a downgrade," I'd have probably still done it.

First Days at Hoover

And so, I accepted that job, and Blaine went up to the front office. And, Blaine's far more technically capable than I am in the field. And so, I always had Blaine to fall back on for technical, (Storey: Uhm-hmm.) technical advice and stuff. So, and that's part of the reason, too, they weren't going to give me the grade, because I didn't have the credentials at the time, I don't think. Maybe I don't now. I don't know. So, I went down there, and the first day–well, before, when I decided to accept, I said, "Before I go down the first day, I want to talk to the deputy that's down there." And, I happened to know Jim Cherry and Jim had just gone down there. I mean, he took the deputy's job–I don't even know if it was a year prior. So, he was

fairly new. But, I at least wanted to know what was going on before I walked in the door the first day. So, Jim came to my office in Temecula, and I asked him, "Well, tell me what is going on? Because, all I know is there is a lot of, there's been a lot of letter writing. Power customers are very unhappy. Now it sounds like management is starting to get, I don't know if it's unhappy, but they're starting to get nervous that maybe things aren't going, going that well. How did you organize down there? What do you have?" And so, he drew this, I guess the only way of describing it is, he drew this circle, and then he put all kinds of circles in there, and he had arrows going from one direction to another, and one was a coach, and the other was a technical expert, and then there was employees, and then you draw bigger circles around some of those that when they do certain jobs they work this way.

I listened for as long as I could, which was probably for about an hour, and then I stopped him and I said, "Jim, I don't like circles." And, and we laughed about that later, because it was, you know, what do you do? Here you're drawing this thing that's full of circles, and you got this dumb guy coming in as the boss now, and he makes the stupid statement, "I don't like circles." And I, what I was saying was, "I don't understand a bit what you're, what you're doing. And, I don't know if I can't understand it, the employees probably don't either. So, how can this thing, this thing work?" So, so we started, we started talking. And, one of the things, when Bob said, "You can have the job," he said, he gave me a couple, as I remember, a couple of things he wanted done. One, he wanted somebody to answer the phone. Apparently, they would call down there, and I (Laugh) guess there was no one really assigned to do those tasks. You do what you think is best to do in a self-directed environment. Sometimes the phone didn't get answered. You know, they'd go off and do other things. And, so he said, "For God's sakes, just answer the phone. Have somebody answer the phone so when we call down there, we at least get a hold of somebody. And, from there maybe things will work." But, that was number one. Answer the phone. I figured I could do that one. And then, secondly, and I think the reason Bob approached me was, I think I have a pretty good, a pretty good way of relating with people, and, and I had been in Southern California for, well, four years and had managed to build kind of a coalition down there. And, I think, in his mind, he was thinking, "Maybe you can do that with the power customers." So, the second one was, "Some, whatever you need to do, calm these power customers down, because they're back in Washington trying to take over the power plants." And they actually made a move to have the power plants, the operation of them, turned over to the power customers. Ownership would reside with Reclamation, but they wanted to run them. And so, he, Bob didn't want to have anything to do with that. He thought we could, there's no reason why we can't run those plants efficiently, and so, "Work with those power customers. Figure out what it is we're not doing, that they need, and get

that done." And then, and then the third thing was, "For God's sake, can you work with the union and not destroy that relationship?" Because, the one thing that Blaine had–that's too harsh. One of the things that Blaine had done was he did build a relationship with the union. And so, they didn't have that big expense anymore, that they were fighting with the union. The union was onboard with this whole, this whole strategy of self-directed teams and things. So, his last things was, "I want you to fix all of these problems that I see, but I don't want you to fix it in a way that you destroy that relationship with the union." So, those were my charges. So, I walk in the door, the first day–this is a long answer to your . . . (Laugh)

Storey: No, this is good. This is good.

Ulrich: So, I walk in the door this first day, and I get down to my office, and there's, by the time I get there–now, I start early in the morning, usually. I mean, somewhere between six-thirty and seven. But, Hoover employees start at six-thirty or sooner. So, by the time I get down there it's probably about quarter to seven, I get to my office there is a line outside my office waiting to talk to me. And, I mean I haven't even put my briefcase on the desk yet, and there's a line out here. It looks like a butcher shop, you know, where they're waiting to, or a post office these days. You take a number, and they're waiting to talk to you. (Laugh) And one of the, one was an electrician, and he since left, but I remember him coming in and saying, "What do you want me to do today?" Well, you know, my training is in economics and industrial engineering, and I was an electronics tech in the service, but I'm by no means an electrician, and certainly not in a power plant. So, the guy comes and says, "What do you want me to do today?" "Hell, I don't know." (Laugh) So, now I didn't say that out loud, but that's sure what I'm thinking, in my mind, you know. "Well, I don't know what you should do today." So, I said, "Well, what's your normal work assignment?" He said, "Well, I'm an electrician, and I work on the generating units. I work on. . ." I forget what all he tells me. I said, "Well, any of those things need, need some P-Ms [Preventive Maintenance]?" He says, "Yeah." "Well, why don't you do that?" So, off he goes.

Storey: P-M is?

Ulrich: Preventive, Preventive Maintenance. And, I happened to know that from my electronics days. (Storey: Yeah.) You know, I'd do a lot of P-Ms myself. I've actually had that, that experience behind me. So, that was the first thing. I'm thinking, "Oh my God, I hope everybody doesn't come in here asking for, me for an assignment because, you know, I'm going to run out of things to–I can only fake this for so long." (Laugh) So, and there was a line of people, and they weren't all that.

That was one question. There was some others saying, "Oh gee. I'm in this work group, and I'm not happy because some of the people are doing their jobs. Some aren't. The coach isn't taking disciplinary actions, blah, blah, blah," and it was just a mess. So, at the time, as I said we had a good union relationship. So, the president of the union–let's see, when I first got there I believe the president was still Morrie, Mylenburg [spelling?], Morrie Mylenburg [spelling?]. And, Morrie [spelling?] was an electrician, and so I got with Jim, and Morrie [spelling?], and I can't remember the vice president right now, and we all got together, and that was call the Core Partnership, and that was developed before I got there. So, I kind of sat down with them and said, "Okay, you know, Jim has shown me the organization you think you've got. I don't understand it. We've got to figure out, first of all, how to make me understand it, and then maybe we can get everybody else to understand it. But, I can't very well implement an organization that I don't even understand."

So, we tried to work through the concept. And, the whole idea was, the philosophy was, people will do good. If you give them a chance, they will do good. And, and so if you're not standing over them as a supervisor all the time, they're going to do the work anyway, and what you need to do is clear the obstacles away so that they can get their work done, provide the training that they request so that they can get that work done, and then, and then when they need technical help somehow you have to provide that resource. Well, normally, that's a supervisor. I mean, we grow, in Reclamation anyway, we've, in the past, we grew up through the technical side, and you become a technical expert in your field, and then you get promoted. And, eventually, obviously you work out of your field, but you still have a basis of knowledge for the whole, for the whole thing.

So, the four of us talked, and talked, through this. I mean weeks. We spent lots of time together trying to figure out how we were going to do this, because it wasn't seeming to work. And, what they were missing, in my opinion, was the technical expertise. I mean, they implemented this thing, and granted the crafts and the professionals have technical expertise but they need someone to go to that may have more at times, or at least the same experience so they can talk through things, and figure out solutions. If your supervisor is the person you're going to, and they happen to be a coach, and they don't know your field, how can you talk with them and figure out problems? That, I, that was beyond me. So, I decided, "Well, what if we create a different, we create two positions to manage?" And, remember, I'm trying to hold this organization together because they've got a good union relationship, and I don't want to jeopardize that. So, I'm trying to work, figuring "You guys have chosen this path, I'm trying to make this path work." So, so we had talked about, you know, if we had a coach to handle the administrative side, so they could, yeah, they could get

the training, they could provide, oh, that inspirational stuff and all those things, but you still needed a technical expert. And so, if we could put a technical expert with that coach as a, as kind of team supervisor so that the technical expert then could work with the folks and work through the problems and stuff that were common to their field."

So, and I had convinced myself, "Yeah, that's a," I convinced myself that would work. So, we prepared a paper, and we laid this all out, how this was going to work. And, we had an all-employee meeting, and we started out saying, "You know, we're going to try and make this organization work. We've recognized there's some, there's some weaknesses, and we think the weakness is the technical side, so what we're going to do is we're going to select some people to work with each coach. There will be a technical expert and a coach. And, that will be the, the two of them combined will be a supervisor." So, and we took questions, and we fielded those questions and stuff. I don't even remember what they were. This is, again, back in '96. And, I said, "Okay, I want to implement this, but I'm, you know, we've been, we're on this route where everybody has, has the ability to have feedback, so I want written comments from you what you think this plan's going to–will it work, number one? If not, why not? If it will work, can it be made better?" So, all these things. And, boy did I get feedback. I mean, I got feedback that was amazing.

Storey: Two, two and a half, three inches of paper?

Ulrich: Oh yeah. Yeah. And, all of it was, "What in the hell are you doing?" (Laugh) And, only in detail. And, I have to give them a lot of credit, the employees a lot of credit, it wasn't just, "You're full of crap. Here's why you are." (Laughter) And, that's what I needed. I needed something to say, "This won't work, because . . ." And, it was, it was still unclear. And their big concern was, "How the heck can you have two supervisors? Who do you listen to ultimately?" And you can walk around that all the bit saying, "Well, when it's admin you listen to this person." But, when it all boils down it's just fluff, and you really need one supervisor. At least, that's the conclusion they came to, and after reading all of their responses, and there was such a similar vein, I thought, "Well, I really fooled myself on this thing," because I was convinced this was going to work. And then after reading all the comments . . .

END SIDE 1, TAPE 1. DECEMBER 15, 2004.
BEGIN SIDE 2, TAPE 1. DECEMBER 15, 2004.

Storey: You were talking about, "Well, I changed my mind."

Reorganization Was Not Working

Ulrich: Okay. I changed my mind. So, so I went back to–and, I wasn't the only one that read these. I mean, I shared it with that Core Partnership, the two from the union, the president and vice president, and the, and Jim Cherry, the deputy at the time. And, we read through those, and we, I guess I was more convinced this wasn't going to work than anybody. But, I had the final say. So, we, I think collectively, decided, with my urging, that this isn't going to work, and we got to, we have to start going back to a traditional organization. You know, there may be some things that we need to, that we can do to help, where we don't get back into this union-management banging heads, but we need a traditional relationship, a traditional organization, in a production setting. And, I mean that's what we have there, at Hoover Dam. And, Davis and Parker never went to this. So, fortunately for me, those plants remained, they didn't start changing all that stuff in those plants. (Storey: Uhm-hmm.) And so, I had two solid plants that I didn't have, I could devote my time to Hoover at the time. So, so we all agreed. Maybe the union was a little reluctant, but they did agree, "Okay yeah, we need to go back, in part, and reestablish organizations and stuff."

So, the first thing we had to do was tell the coaches, you know, "This job doesn't exist anymore." Well, see that's where old Tim was inexperienced as heck, because I had never abolished positions before, and, and what had happened because of the re-invention, and all of this stuff, and they were trying to solve all of these goals–remember they had, they had some laudable goals, they put, I bet the coaches were, well I think only out of maybe eight to twelve coaches, there were only two males. So, most of them were women. And, so, all of a sudden I find myself in a class-action E-E-O [Equal Employment Opportunity] suit. "Here this guy's coming in. He's demoting us because we're women." And, now that thought, honestly, never occurred to me, (Laugh) but, but you know, I can look, look at it and say, "Oh okay, I can see where you'd draw that conclusion." They're almost all women and I'm talking about, "We got to find you a different job, and it's probably not going to be as good as the one you've got." Because they were all on a career path to go to a full GS-12. Some of them were only fives. So they had, were on a quite a steep ladder there. (Storey: Uhm-hmm.) So, I said, "Well gees, you know, I'm not, I'm not saying you're out on the street, I'm just saying you can't be a coach because the position isn't going to exist. And so, we've got to figure out where we can put you, and I'll try to make your ladder as high as I can, but I can't guarantee the twelve."

And so, I mean, we worked through this whole thing, and eventually the suit was, was dropped, and stuff, after I lost the rest of the hair that I had. And, we did work with each one of them trying to get them to as high a level as we could, near the

GS-12. Some we got to the GS-12 eventually, some we didn't. I mean, I think, there were a few we just couldn't, they just didn't have the knowledge base in any of the fields to kind of get them in the, even close. So, some of them were clear down, topped out at the seven, I think. And, that was tough. That was tough on them, and I didn't enjoy it either. I mean, I think some people thing, "Oh. You enjoy making people miserable." You know, you don't. I mean, and you go home at night and you think, "Well, gee, you know, I've affected these people's lives." And, it wasn't a pleasant thing. But, on the other hand, I have a job to make the power plant work the best I can. I can't just carry everybody. We're not a social organization. I think we have a social conscience. But, we're not a social–our primary mission, I've never heard the commissioner say, "Our primary mission is to make employees as highly graded and making as much money as we can." That's not it. Now, there's certainly some, some obligations we have to employees to (Storey: Uhm-hmm.) to try and get them to their potential. But, anyway. So, so that was, I had that. I had–I mean, there was all kinds of E-E-O complaints, then union complaints and stuff, that I was starting to get, you know, like, "Man, what am I doing down there." And, I'm thinking, "Holy cow. I'm, pretty soon it's going to be, I'm going to be in the same position Blaine was." But, we somehow worked, worked through all that.

Developing Trust with the Power Customers

And, on a parallel path, we were working with the customers, and they were ticked off because we weren't listening to what they were saying. And so, on that, on that path what I was trying to do is, first of all, understand where they were not getting what they thought they deserved, and it was mostly information. They felt that they wanted to be, because they were funding the project, everything was reimbursable, non-appropriated, and so they thought they should have a pretty, pretty good say in how things were done, and also, you know, what are we doing to contain costs, and to improve efficiencies, and improve production, and stuff? And, I think, I don't think we intentionally left them out. I think we were so focused on this Re-Invention side that we kind of were hoping that would take care of itself. And so, we weren't feeding them that information.

So, one of my objectives then was to immediately to start getting them information. So, fortunately we had the one thing, one of the employees, a former division head, Ken Yanni [spelling?], had taken it upon himself was to put together a ten-year plan. And, he had done a pretty good job of assembling data, and what our maintenance program was going to be, how our operations was, and stuff. And, so he, we at least had that. And so, what I went into the customers with was, "Okay, I need to understand what more you need, how we can be of service, and I'm going to

get you what, you know, if it's reasonable, I'm going to get you what you need." And so, we talked through that, through that thing, and they said, "Well, we want to know a little more detail of how you're making your decisions. When you just say, 'Oh, I'm going to do an overhaul,' why did you say that? What made you determine that you're going to do an overhaul? Did you look at the condition of the equipment? Did you look at the age of the equipment? Did you look at how that would extend the life? What kind of, did you do any kind of economic analysis? Did you rely on engineering to determine where these accept, were these within acceptable standards? What did you use to make your decision?"

And we were kind of telling them, "Look, this is the decision. We made a good decision, you know. Here it is." And, and so we had to back up and say, "Okay, we're going to even provide more detail, in terms of, 'Here's why we made that decision.'" And we started involving them in helping us define what the criteria should be, in making decisions, and even giving them some, some, I guess some say in the decisions. We never let it be said that, and we always held back, "Look, it is our decision to make, because it's our, it's our property. It's the United States' (Storey: Uhm-hmm.) property, and we have an obligation to the United States in total, not just to the power customers. But, since you're primary recipient, primary beneficiary of what we're doing, you ought to have a pretty good ability to tell us what you think, and influence our decision."

And so, that's the approach we took. We said, "Okay. We're going to tell you how we're making the decisions, and we're going to get feedback from you. If you think, 'Oh, you're using the wrong standards, we'd like some different standards to be used.' 'Well, you know that's, that's all well and good but you're assuming no risk. We're willing to take some risk.'" And we started, just back and forth conversations, and stuff, and followed up with written reports of decisions and things. And, we eventually, I guess, won those customers over. Right now we have a very good relationship with the customers. And, I think, you know, we involve them in detail in our work plans, in our ten-year plan. We, Gary sends out a, what he calls a Hoover Fax. I think it's probably a monthly or bi-monthly, whatever. There's probably not a set time frame, but as soon as there's significant actions, he sends out information to them as to how the jobs are going, and where we are on the budget. Do we think we're going to run over? Do we think we're going to have surplus? Are there other things coming up that we didn't anticipate, or did we find some things that we thought were bad that actually weren't? We're-prioritized. All of that is now in writing. I mean it's, every, they get a Hoover Fax, and "Here's what's going on." And, and frankly they don't even, the only comments we get today are, Gary runs what's called the Technical Review Committee, and that lays out the ten-year plan, and the next

year's work. And, they, we bring in all of those customers and we go over that in detail. They question, "Oh, why are you doing that?" Or, "Well, don't you think you ought to do this?" And, we respond to that. And, at the end of the, there's a certain period where we have to publish a preliminary, then a proposed, and then a final. By the final, everybody's in concurrence. Everybody knows what we're doing. Everybody agrees. And, we've never hit a situation yet where we've had a disagreement. Now, that day will come, but I think when it does, at least it's going to be a civil disagreement, and people are going to recognize, "Okay, if Reclamation does something different than what the customer's want, at least they know why." And, I guess that's been the big, the big change.

Reshuffling the Area Office

Now, as soon as, so, so we kind of straightened out. We got the organization back to a traditional organization. We started working with the, we're still working with the union quite a bit. And, then the next step was to really start, "Okay, now we've got customers. They're placated. We've got the employees. They're okay for the most part." And when I say, I mean there are still jabs coming here and there, but for the most part it's not, it's not falling apart anymore. And so now it's time to start going after some of the goal, some of the physical goals that we, that we really wanted to achieve, or I wanted to achieve, at the power plant, and that's increase availability, improve efficiency, and respond to economic efficiencies. And so, about this time Jim was ready to move on, and Gary wanted to get back to, Gary Bryant wanted to get back to Boulder City. And so, I think it was LeGrand [spelling?] ask, "Well, gee, is there an exchange possible here? They're the same grade. Would you, would everybody be willing to, to do the exchange?"

So, that meant Gary had to be willing to come to Hoover and work for me. And Jim had to be willing to go to Yuma, as the area manager, and I had to be willing give Jim up and bring Gary in. And, from my standpoint, I thought, "You know, I think this might be a good, a good thing." Because, Jim and I had worked together now for, well at this point it would have been three or four years. And, we, I think we moved the organization to a point where it needed another change. And, I think Jim grew, and was ready to take on more responsibility. And Gary, for the most part, wanted to just get back to Boulder City and do some things that were fun to him. And so, it was a good, everybody said, "Yeah, this, this will work." And frankly, I think that was one of the best things that we ever did. Because, I think, you know, Jim went on, and I think he's been doing pretty good down in Yuma. And, Gary came up and took the next step. And, Gary is really an excellent manager when it comes to production. I mean, he's focused. He lays out his thoughts as to, "Here's where I want to go.

Here's what I want to achieve. And, here's some of the things I think we need to get there. You tell me the rest. Make it happen." And, I give him a lot of credit for taking us that next step, because he stepped in and said, "Okay, the organization's working. Now, we're going to, we're going to . . ." And, I had said, "I'd like to increase availability. That's number one. And, I'd like to get us responding to the customers, from a power standpoint, a little more. Not from information, but truly from a production standpoint. And, get our forced-outage rate down, our scheduled-outage rate manageable, and availability up."

And so, those were the goals. And so, Gary took that–oh, and the other thing was, we had Visitor Services, which had transformed form a, I'll call it a mom-and-pop visitors services to a Wal-Mart. Because, we went from, "This is kind of a thing we do. It's been, it was part of Hoover from day one, and it's always going to be there. And so, it's just something you put up with." And, at some point a decision was made, again way before me, to build a Visitors Center. And, when that decision was made, we transformed the business, because now it's no longer a mom-and-pop, it's truly a business, and it has to be integrated into the plant. It's, used to be about $300,000 a year income to the dam. But, all you had were, I don't remember what the number was, but I think the number of guides were like a dozen or so. That was Visitor Services, a dozen guides and you brought in about $300,000. You never covered the cost of those guides, let alone any of the costs associated with the maintenance accruing to visitors. And, when they decided to build the Visitors Center, well, that's a big cost.

As you know, that was very controversial. And, that was one of the things, also that really set the customers off, because they felt, rightly or wrongly, that they were kind of done in, because we decided to spend this, all this money on the Visitors Center, and they didn't think they were ever really consulted on that. And, I can't go back and retrench all that because I wasn't part of it. Anyway, that was just, that was just an aside as to one of the other relationship problems. So, we got this Visitors Center and frankly, now, we got to repay a debt service of $128 million, and we've got operations that have greatly escalated just because of the layout, and stuff. And now, we have to bring in a number of more visitors to help pay for that. And, in defense of the Visitors Center, one of the primary reasons for building it was, was we were tapped, we were maxed out in terms of visitors coming to Hoover Dam and taking the actual tour. You couldn't get more than about 700-800,000 through the plant, because of the elevators. With the Visitors Center, and the new elevators, they, depending upon how you operate, I've seen that go from anywhere from 1.4 to even two million a year could be put through the facility now, just because of the Visitors Center. So, they wanted to get more people through, but now we had to get more

people through, because now we need money.

And, again, prior to my time, they, in trying to work with the customers, they came up with something called an Implementation Agreement. And, Ed Osann one of Beard's right-hand guys, was instrumental in getting that Implementation Plan done. And, in that we had made some commitments that we would, we would work with the power customers and bring them in on decisions on the Visitors Center, and we would make every attempt possible to have the Visitors Center be a stand-alone revenue unit, meaning that the Visitors Center would pay for itself, with the exception of fifty percent of the debt. And, the way they came up with that was, and it's roughly, it's not exactly fifty percent, but I'm going to use that as the, and it's pretty close. When the authorizing legislation for the Visitors Center and the upgrading at Hoover was passed, in the Hoover Act of 1984, the Power Plant Act, I think it was $73 million was approved for that cost, in 1983 dollars.[12] And, about, I don't know, I think it was twenty-some million was for the Visitors Center, and the other was for the upgrading.

Hoover Dam Visitors Center Controversy

Well, the customers decided to fund the upgrading through bonds, and they never used the appropriations for that. And here's where the discrepancy occurs, or the disagreement, and probably misunderstanding. We had seventy-three, I think it was $73 or $77 million approved for the entire project. When they took on the responsibility of paying for the upgrading, Reclamation took that as, "Okay, then, I have seventy-some million dollars to build the Visitors Center, rather than twenty-some." Now, whether that was fully vetted with everybody, and stuff, I don't know, but that's the big, that's the, behind the whole controversy on the Visitor's Center. Is, did Reclamation, did they really inform everybody that they were going to use the full seventy-some million, as opposed to the twenty-some? Now, as you know, the appropriations bills, I mean it was in there, you can go back and you can look at those, and so if they read the appropriations bill, I think they have a hard time arguing that, "Gee, we hid that from them." And we maybe could have done a better job of explaining, "Hey, you realize we're going to now use this money for the Visitors Center?" But, it was never, I mean we're an upright organization, and I can see where there would be a misunderstanding, but there was nothing other than that.

So, anyway, what I'm getting to here is, we have some pretty lofty goals for the Visitors Center. And so, I told Gary some of my power plant goals, and some of my

12. For more information on appropriations to upgrade the Hoover Dam Visitors Center, see "Hoover Power Plant Act of 1984," in USDOI, BR, *Federal Reclamation and Related Laws Annotated (Preliminary)*, 1983-1998, 3403-20.

Visitors Center goals, just in general, in talking. And, being the manger he is, I mean he takes that and says, "Okay, then here's what we're going to do at the Visitors Center." And, I mean he's got that thing scoped out, and he's going to succeed on those goals. And, so what I was getting to was, it was a good fit. Jim and I had, I think, gotten the organization back to a working organization, and now Gary and I are taking it that next step and saying, "Now, we're making it the best organization." And, in that process, we also then, one of the things that was of concern to us, and the customers is, "How do we really compare to others?" And, of course, Reclamation had done some bench marking, but we had done bench marking against ourselves. And, that's what I presented at first, and the customers just about threw that back at me and said, "We're not talking about how you do compared to other Reclamation facilities. We're talking about how well do you do compared to Southern Cal Edison, compared to P-G-&-E [Pacific Gas & Electric], compared to New York Power Authority? How do you compare to those guys?"

Developing Benchmarks

So, we decided, "Okay. We'll try to benchmark it." So, we formed this ad hoc committee with the customers, and we're going to, we were going to look at different organizations. We talked about Saturn, we talked about Bath Industries, and seeing how they improved themselves, and then, in talking with Mike Raludi [spelling?] one day, Mike says, "Well, there is a bench marking, there's a Power Bench Marking Group that Hadden-Jackson has done for about a year or two now. Maybe you want to get involved in that? And, in fact, I can get you in there, and I would even be willing to fund some of the cost of getting you started, because I think it would be good for Reclamation." So, Mike steered me to Hadden-Jackson, and I talked to Chuck Hadden, and thought, "Yeah, this fits the bill. I mean, it's got Southern Cal Edison in there. It's got L-A-D-W-P [Los Angeles Department of Water and Power], had New York Power Authority, had T-V-A [Tennessee Valley Authority], some of the Corp of Engineers. It had some of the Canadian companies." And so, I brought that back to the, our Engineering and Operating Committee, the power customers, and said, "You know, we've been, we're spinning our wheels here trying to figure out how to benchmark with these other industries, and how to improve and stuff, maybe we should be looking at other power plants, and here's a company that already does that. We don't have to go out and try to figure out what benchmarks to build, and all of this. We'll just do traditional power comparisons." And so, everybody kind of looked at that and said, "Yeah. Yeah, we agree. We think is the way to go. We don't have to go trouncing around the country, you know, looking at other production facilities. We can actually just kind of put our statistics together, along with others, get together, compare those, and see how we stack up, and then figure out, 'Okay,

what do we do to better ourselves?'"

And, so we started participating. And, we came out, the first year we were a little bit on the low side of mediocre, but we weren't a dog. So, that was a good sign, right off the bat, you know, "Okay we're, yeah, we can improve, but we're no, we're not the dog you think we are either." And, that was good for us. That was good for the customers, because they, there's not much they could say, either. "Yeah okay, I see how you fit in here." And so, then, the next thing was to take that and figure out, "Okay, what are these companies that are doing better? What are they doing that we're not?" And, that's when we started making some more organizational changes. And, we put in a whole planning, planning office. And, not in the sense of Reclamation planning, but more in a power plant planning thing, job planning, work planning. And, we went to New York Power Authority, and they said, "Well, you know what we did was we took our foreman, and we took some our best foremen and some of our best craft, and said, 'You know this is important enough that we need you in planning more than we need you on the floor.'" And so, we did the same thing. We said, "Okay, we'll take some of our foremen, and we'll put them in planning, and say, 'Your job is no longer to supervise those people. Your job is to plan out that job. What materials will we need? What are we likely to encounter? How much time do we have to devote? How should we plan the outage? When should we do the outage? All of those things.'" And, that was one of the, I think, was a significant factor in our, in our turnaround, too. And, so now we have a pretty strong planning, planning department, part of engineering.

Restructured the Engineering Department at Hoover Dam

And, the other thing that I saw was, our engineering was really, our engineers were good, but they weren't working with the crafts. I mean, the engineers would say, "Okay, here's the way you ought to do it," the crafts would look at it and say, "Okay, here's how we're going to do it." And, there wasn't any, the engineers didn't go down on the floor. Craft didn't come up and talk to Engineering. And, so that was the other thing that we had to change. So, we decided one of the people that was on our . . .

END SIDE 2, TAPE 1. DECEMBER 15, 2004.
BEGIN SIDE 1, TAPE 2. DECEMBER 15, 2004.

Storey: This is tape two of an interview by Brit Storey, with Tim Ulrich, on December 15, 2004.

So, you had to change that?

Ulrich: Yeah. So, we had to change the engineering. And, we had somebody on our Technical Review Committee, from Salt River Project, and I had worked with–his name is Dan Pelishood [spelling?]–and I had worked with Dan before, when I was chief of Power Resources. And, I have a lot of respect for him, and he's a real knowledgeable guy, and so I thought, "You know, I'm going to try and get Dan to work for the Bureau of Reclamation." So, I had talked to him, you know, and he said, "Well, I don't think I'm really interested." He said, "I like the work, but I can't see, I've got too much time vested in S-R-P [Salt River Project], and it would be too much of a loss for me." So, time went on, and I still, it was always in the back of my mind, "I've got figure out how to get this guy." And, then it had occurred to me, and I don't know how this, but when I was in Power Resources, I hired a meteorologist through an I-P-A [Inter-Personnel Action], and I was able to pay quite a bit more than a Reclamation employee would make, because it was an I-P-A, Inter Personnel Action. And, so I talked with, went back to Dan. I said, "You know what I've been thinking, and maybe I don't have to bring you in as a Reclamation employee. Would you come to work for me if you were still employed with S-R-P?" And, he said, "Well, let me think about it." So, he did, and he called me back a few days later and he said, "Yeah," he says, "I think I'd like working, working with you guys, if I could stay on the S-R-P payroll, keep my pay, keep my retirement system and all the benefits, I'd do it." So, I said, "Okay, let me see what I can do." So, I talked with, with H-R, with Human Resources, Susan, and I talked with Bob Johnson, and I said, "Here's what I want to do. I want to bring this guy over, and I'm going to have to pay him his S-R-P salary. There will be a bump on top of that, because there's overhead that we'll have to pay to S-R-P, but it's going to be worth it. And, will you support me on that?" And they said, "Yeah, we'll, if you think that's what we need to do, go ahead and see what you can do." So, and that's, I guess that's the beauty, I think, of working for Reclamation. And, I've worked for other organizations, and I've always had–of course I've always had Bob Johnson as my boss, maybe that's the difference–but I've always had really good support from, from all directions in Reclamation, and that has made a significant difference. So, I don't feel like I'm going there thinking, "Oh, I'm not going to get this." Every time I walk into the office I figure I'm coming out with what I want. And, I do. I mean, they support, they have supported me even in some dumb things. But, so I got that support, and Susan set it all up, and I wrote a letter to Dick Silver- was it Silverman or Silverburg [spelling?] at that time? I think he still is, the head of S-R-P–and said, "You know, you've got some top-notch people, and you're part of our project, and in some sense you've got a certain share of it. We could really benefit if you would loan us an employee, and we'll pay the full, the full freight for that employee, and we think it will be a plus for us, and it will be a plus for

you, because you're going to get, you're going to get better production from our plants, and you're a customer." And, he said, "Great. Yeah., if we can do that, if we can help one another, let's do it." So, we brought Dan in, and Dan still is the head of Engineering. Now, it's going on, it just went over three years last, in October, and he has been just one other significant addition to Hoover. He's, he's just a knowledgeable guy. He's a mechanical engineer, and just knows the hydro business as well as anybody that I've run into, all aspects of it. I'm just really impressed with Dan.

And so, he's on board, and we've, we've, he's done a number of things to increase our knowledge of the industry, our knowledge even of the power plant, and we have engineers now that are out on the floor. I mean, they're not in their office, anymore, just sitting behind a drafting board, or a calculator, or a slide rule. Slide rule is outdated, but (Storey: Uhm-hmm.) they're out there working with the craft, and they're talking to the craft, and they're exchanging ideas and coming up with solutions together. And, I mean, it is, it is really a pleasure just watching the growth in that, in that area. I mean they, they've, I think we're going to be–I am convinced that it's going to probably be another three years, and Hoover is going to be in a position, as well as Parker-Davis, that the next people coming in are going to have one heck of a good foundation to work from. I mean, they are going to have the best. And, I think it's just going to be, I think we'll be number one for a long time.

Storey: How many staff were here when you came?

Staff Rearrangements

Ulrich: I don't know the exact number. I think it was about, about 350.

Storey: And, what about now?

Ulrich: We're down to about 250, 260.

Storey: Hmm.

Ulrich: So.

Storey: When they reorganized and created the, whatever it was.

Ulrich: Yeah. (Laughter)

Storey: The new system? (Ulrich: Uhm-hmm.) What happened to the supervisors and foremen, who were in place?

Ulrich: They went, some of them moved on, went to other jobs. Some of them stayed on, but as, they were employees without work, so they did whatever they thought needed to be done. And, others took actual, I think there were–well, I'm trying to think if anybody took a demotion. But, also, what I, the part I forgot about was this, during this period Reclamation was going through this reduction, the buyout thing.

Storey: Yeah.

Ulrich: They got the buyout authority. So.

Storey: Under Dan Beard?

Ulrich: Right. And so, so I had, I inherited that program, which I'm grateful for, because a lot of the people just took the early out, and others moved on to different agencies. Others moved on to other Reclamation offices and different roles, and stuff. So, that's how it all kind of ironed out.

Storey: So, you didn't . . .?

Ulrich: And some of those I put back in place.

Storey: That's where I was going. I was wondering if that happened?

Ulrich: Yeah. Eventually some of them I put back in place. I put back Ken Yanni [spelling?]. And, let's see. Was there anybody . . .? Gosh, I can't remember. I can't remember now who–I know I did with Ken, and I think there were a couple others. And some had left, I said, like Dick Flink [spelling?] had left, and said, "I've had enough of this"–he'd say what it was–(Laughter) and went off to Flaming Gorge. And, I had known, like Dan, I wasn't new to the power industry. I mean, I had been working in the field for some time. And so, I had worked with Dick before, and one of the things also that I inherited was an Operations Division without–well, obviously it didn't have a head, because we didn't have any. As I said, there were coaches and stuff. (Storey: Yeah.) And, those operators were, had, they still had shift supervisors. So, each shift would have a shift supervisor, and they weren't, they weren't getting along, and the staff wasn't getting along with them, and they were, they never abdicated their responsibility. They never said, "We agree, and we're out." They said, "No, we're still doing exactly what we did, and you guys will listen to us." (Laugh) And, so, so I

asked Dick, who was at Flaming Gorge, and I saw him at an O & M conference, and I said, "How about coming back to Hoover? Because, I really need somebody to take over Operations." And, because we had tried a number of things. We put some people in there that were operators, but wanted to move up. And, we tried them, and it didn't work out. And so, Dick said, "Yeah, I'd come back." So, I brought him back into Operations, and I put Yanni [spelling?] into Maintenance, and oh, who else did I have? I can't even remember. But anyway, then I said, later, "I want to make sure that you guys move around. I don't want you getting set in one position." And so, I told, oh, and I promoted Don Bader [spelling?] into, into Engineering at the time.

And, then I decided, "You know what? I need to make a switch here. Yanni [spelling?], you're going to, you're going to Operations. Dick, you're going to Engineering, and Don, you're going to Maintenance." And, some of the reasoning behind that was, I was seeing that while we were starting to move back into this, the positions that we were before, before Blaine did all this stuff. And Blaine didn't, I mean, didn't start out with, "Oh, let me create, create a crappy organization." I mean, he did what he did for a reason. And so, so I started to see, "I think we're drifting back a little bit. I'm going to start shifting things around, keeping you guys a little bit off, off guard and out of your element a little bit, so that you're on your toes." That didn't go over big at all. But they did, I mean they, well they had no choice. And then, then when, you know, that moved it a little bit to the better, again, I think. I'm giving myself a lot of credit. (Laugh) And, that's when I, when I decided, Dick said, "Well, I'm, I really appreciate the, all the stuff. I had a good time, but, you know, I'm eligible for retirement. And, nothing personnel, but I want to enjoy retirement." And so that's when I said, "Well, okay." And, I brought Dan in through all those machinations. And, I was fortunate enough to where I could bring Dan in without Dick leaving. So, there was about a four to six month period where I had both of them, which really helped a lot. And, together they made a great, a great team. And then, then it's been great from there.

Storey: Did you have an issue with any supervisors or foremen who were still there, whom you did not put back in to an office?

Ulrich: Yeah. There were issues. There were hard, there were hard feelings in a few spots. And, the shift, the shift supervisors were one area. They eventually all got demoted, and that wasn't an easy thing for either side. Again, that was one of those things they, I think they think I enjoyed that. I really didn't. But, what I wanted to do was, we didn't need shift supervisors, and but I didn't want to affect their pay. And, so I said, "You know, what I want to do is transition into here. I'm going to protect your pay. I want to make you a senior operator, and you won't have any supervisory

responsibility. You'll keep your pay, because you're going to be a senior operator, but you'll have to start doing, working in the Control Room and stuff. And, I'll preserve your pay." And, they essentially said, "Screw you. We're not, we're not doing that." And so, I said, "Well, you know, I have no choice then, because I'm not keeping those positions, so I'm going to have to do a Reduction in Force." And, we did.

And, so they still saved pay, in a way, but they saved a fixed pay. See, I was willing to let them go up and, until they retired, and then we'd replace with a senior operator but at a, at the proper level. They forced me into a situation where we had to follow RIF [Reduction in Force] procedures, and they kept their pay, but it was locked in. So, I still have some of them working, working there. I think two. And, they, they actually, now they might be starting to get raises again, after all these years, because they were locked in until the control room operator caught up with them through, through inflation. (Storey: Uhm-hmm.) And, some of them left right away. I mean they said, "Okay." They didn't think I could pull it off, and we did. And so, they said, "Well then, to hell with you. We're leaving." "Okay. Sorry to see you go." (Storey: Hmm.) Some stayed, and they're still there. Like I say, I think I have two of them. And they're, they're working out fine now. I mean, I think we're, we're through all that stuff now. There were tense moments.

Storey: Always so much of that stuff. I found out yesterday that there's another area manager?

Area Offices Responsibilities within LC Region

Ulrich: There's another area manager?

Storey: Yeah. Terry . . .?

Ulrich: Oh, Fulp.

Storey: Fulp is it?

Ulrich: Yeah. Oh yeah.

Storey: And see, I thought you were the area manager. So, I'm confused. What's this all about?

Ulrich: Oh. Oh. Okay. Terry–there used to be, what we called the 400 Division, which was

Water, Land, and Power. (Storey: Uhm-hmm.) Back in the old Reclamation 400. And then, later when we reorganized, again under Beard–I mean, a lot of changes were made under Beard–it became the Boulder Canyon Operations Office. And, it's still the Water, Land, and Power. They have all the contracts. So, they administer the water contracts, the power contracts, land contracts, they do the river management, that type of stuff. And, that's where I used to work. I used to work in that division as the Power Resources manager. And sometime back, and I don't remember what year it was, but it might have been when Bob was R-D already, because I don't think it was an Area, excuse me, and Area Office when I first came to Hoover. But, they always had problems getting appropriations and stuff, and they thought, "You know, if we made this, if they could see that it's an Area Office, and the appropriations they are getting are to really manage the contracts, and the river, that maybe it would be an easier time getting those appropriations." I think that was what was behind it. Now, I'm probably talking way out of school here, and maybe that wasn't it at all, but anyway Bob decided to make that an Area Office (Storey: Uhm-hmm.) the Power, Lands, and Water Division. And, and at the time I think Bill Rinne was there, and so they made Bill an area manager. And so he has what used to–or at that time then he took over the old 400 Division, called it Boulder Canyon Operations Office, and now it became the Boulder Canyon Area Office. And, and so he was an area manager and started going to the area manager meetings. The difference is, they call it the Boulder Canyon Operations Office because all of their contracts are really related to Hoover Dam, because they're all related to water and power, which are all a result of having Hoover in place. (Storey: Uhm-hmm.) So, it really is only the same office that was always there as the Water, Lands, and Power Division, but now they made it an area office. The same responsibilities.

Storey: And they don't control an area?

Ulrich: No.

Storey: Oh, that's interesting.

Ulrich: But, you know, I don't either. I only control facilities.

Storey: You control three dams?

Ulrich: Right. But, there's not, in between, there's, I don't have that area.

Storey: Yeah.

Ulrich: I have, as Jim Cherry always likes to tell me, now that he's been down in Yuma, "All you have are three pieces of concrete sitting in the river." (Laughter)

Storey: That's all you have. (Laughter)

Ulrich: That's right.

Storey: How much money a year is this?

Ulrich: Oh gosh. Combined, about, just under $100 million, with all three (Storey: Uh huh.) facilities.

Storey: Interesting.

Ulrich: And, but Terry, Terry Fulp is now the area manger of that Boulder Canyon Operations Office. And, I hired Terry. When I was in Power Resources, I hired Terry, and he was student at the University of Colorado. He is an interesting guy, a brilliant man. (Storey: Uh huh.) And that's a, I mean–the successes I think, I think my biggest successes were probably hiring Terry Fulp, getting, getting Dan, Dan Pelishood [spelling?], and I think also getting Charlotte Romero, our admin officer. And then, I was fortunate to have Jim at Hoover to start out with, and Gary willing to exchange. (Storey: Uh huh.) That was just, I'd like to take credit for that, but I can't. (Laugh) So. But, that was really a great benefit to me. So.

Storey: How, how does the union work down here? You know, I hear all these stories about, "They won't turn a nut because they're in the wrong (Ulrich: Yeah.) speciality, or whatever?"

Ulrich: Yeah. And that's the way it used to be. And, that's what, Blaine changed that. He was successful at changing that. You know, Blaine had some, some successes. And, that was one of them. And, so he kind of cut through all that stuff, and we don't have that problem anymore. Now, I will have to admit that I think we have–I don't know if I want to say regressed–but we, we do have some union-management rubs again. They're not severe, and I think, for the most part we're getting along. But, we are starting to have some of those. And that probably means that it's time for me to hit the road, you know, I mean they, it's time to take that organization another step. And I'm probably, probably blocking the road right now. And, I'll, you know, I'll just have to step aside, but I just have some other things, on a personal side, that I'm still kind of hanging out there. Ideally, for the organization, it would probably be better if I left right now.

Storey: But, you have two kids in college? (Laughter)

Ulrich: That's exactly . . .

Storey: Whatever?

Ulrich: Right.

Storey: That kind of thing, (Ulrich: Right.) is what I'm hearing?

Ulrich: Right.

Storey: Yeah. Interesting.

Ulrich: So. Yeah.

Storey: Let's see. I had some other questions, which I see we've all, we've covered all of.

Ulrich: Oh, okay. (Laughter)

Storey: This morning when I was with Gary he talked about overhauling the units.

Ulrich: Yes.

Storey: And, of course, he's very involved in making sure it's on time.

Ulrich: Yes.

Storey: And, you know, pulling the dates earlier and earlier in the year when they're finished, and all that kind of stuff.

Ulrich: Right.

Storey: But, from your viewpoint, in dealing with the customers, (Ulrich: Uhm-hmm.) is there something different about your perspective from his, in dealing with them in these overhauls, and so on?

Ulrich: No. I think we're pretty much in sync. Gary has, my, my position has changed very much from the day I walked in to today. I was involved in all of the nitty-gritty decisions in the beginning. I mean, and I kind of held Jim back, in a little, in ways.

You have to remember, I had a branch. I mean, I started out, I was chief of the Economics Branch, with about four, four people. Then I went the Power Resources Branch, and I had about ten people. Then I went to Temecula, essentially with two people, and then we built it up to about eight people. And then I came to Hoover. So, so I think starting out I was a pretty poor manager, because I couldn't, I was used to always being the first-line supervisor, and making all the decisions. Well, no, that's an extreme, but involved in all of the decisions, and concurring that, "Yeah okay, that's the way we want to go." And when I went to Hoover, I think I did Jim a little bit of a disservice, and probably the organization, because I wasn't, he had to bring all those decisions to me. I mean, he could make the decision, but I wanted to know what he was, what each one was going to be, and did I concur or not. I don't think a good manager of an organization that size does that. I don't do that today. When Gary does an overhaul, and he literally works with his folks in setting up that schedule. They tell me what the schedule is. And, there may be times when I, when I say, "Well, wait a minute, I think it should be a little different." But, for the most part, I don't even get involved in that. Those decisions are his to make. He's, and I changed it from deputy area manager to facility manger. I have a facility manager now, at Hoover, Davis, and Parker. (Storey: Uhm-hmm.) I have the best job in the world, because I have good managers at all three facilities now. And, I, I essentially have a pretty doggone easy job, these days. And, and, but getting back to your question, for the most part, Gary and I are in sync. Very rarely, I mean there have been a few times when I'll say, "No. I don't want to go that way." And, Gary's really good, I have to say. He'll make his case. And then, if I'm still, "Nope," he gets right on board. I mean I, he has been terrific. But I, boy, I'll tell you, I can't think of maybe one or two times that that's happened. (Storey: Uhm-hmm.) We're, we're pretty much . . .

Storey: Good.

Ulrich: Pretty much in sync.

Storey: Well, let me ask you, again, if you're willing for the information on these tapes and the resulting transcripts to be used by researchers?

Ulrich: Sure.

Storey: Good.

Ulrich: Sure.

Storey: Thank you very much.

Ulrich: You bet.

END SIDE 1, TAPE 2. DECEMBER 15, 2004.
END OF INTERVIEWS.