

# ORAL HISTORY INTERVIEWS

WESTON HIRSCHI



STATUS OF INTERVIEWS:  
OPEN FOR RESEARCH



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Interviews conducted—1995, 1996  
Interview edited and published—2016

Oral History Program  
Bureau of Reclamation  
Denver, Colorado

SUGGESTED CITATION:

**HIRSCHI, WESTON.** ORAL HISTORY INTERVIEWS. Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, Senior Historian, Bureau of Reclamation, in Salt Lake City, Utah. Edited by Brit Allan Storey, further edited and desktop published by Andrew H. Gahan. Repository for the record copy of the interview transcript is the National Archives and Records Administration in College Park, Maryland.

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## Statement of Donation

### STATEMENT OF DONATION OF ORAL HISTORY INTERVIEWS OF WESTON J. HIRSCHI

1. In accordance with the provisions of Chapter 21 of Title 44, United States Code, and subject to the terms, conditions, and restrictions set forth in this instrument, I, Weston J. Hirschi, (hereinafter referred to as "the Donor") of Bountiful, Utah, do hereby give, donate, and convey to the National Archives and Records Administration (hereinafter referred to as "the National Archives"), acting for and on behalf of the United State of America, all of my rights and title to, and interest in the information and responses (hereinafter referred to as "the Donated Materials") provided during interviews conducted on June 28, 1995, and August 12 and August 13, 1996, at the Upper Colorado Regional Office of the Bureau of Reclamation in Salt Lake City, Utah, and prepared for deposit with the National Archives and Records Administration in the following format: cassette tapes and transcripts. This donation includes, but is not limited to, all copyright interest I now possess in the Donated Materials.
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Date: 8/15/96 Signed: Weston J. Hirschi  
Weston J. Hirschi

Interviewer: Brit Allan Storey  
Brit Allan Storey

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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.

Questions, comments, and suggestions may be addressed to the senior historian.

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For additional information about Reclamation's history program see:

[www.usbr.gov/history](http://www.usbr.gov/history)

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**Oral History Interviews**  
**Weston Hirschi**

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing Weston "Wes" Hirschi on June the 28<sup>th</sup>, 1995, in the regional offices of the Bureau of Reclamation in Salt Lake City, Utah, at about two o'clock in the afternoon. This is tape one.

Mr. Hirschi, I was wondering if you would tell me where you were born and raised and educated, and how you ended up, finally, at the Bureau of Reclamation.

**Early Life**

Hirschi: Well, I was born in a little town called Park Valley, northwest part of Utah, and went to school out in Park Valley, grades one through eight, then went to Brigham City, Utah, for four years of high school. That was during the war when they wouldn't send teachers out for those grades eight through twelve. Then I attended Utah State University—of course, back then it was Agricultural College—1952 to '56, four years, and got a degree in civil engineering.

The connection probably between me and the Bureau of Reclamation developed twofold. One when I was a *kid*, I liked to build things. That was probably just a natural talent I had when I was born. When I started college, I needed to have some extra income. The Bureau of Reclamation back then started about that time a student aide program, where you could work for the Bureau of Reclamation in the summer and go to the university in the winter, with the hope, of course, on the part of the agency, that you would go to work for them after you graduated. That's precisely what happened.

I went to work for the Bureau of Reclamation as a student aide in 1954, as I recall, and after I graduated, after a short term of six months' service in the military, then I started my career in the Bureau of Reclamation. At one time I thought, "I'm not sure I want to work for this agency my entire career." I went to California to visit my brother, and I thought I'd interview for some jobs down there that were readily available. After I got down into that traffic and congestion, on my brother's advice, I went back to the Bureau of Reclamation. I really never terminated, and was with them from that point on. Just a little shy of thirty-eight years.

Storey: 1954.

Hirschi: From 1954 until January 2, 1993.

Storey: I think you'd left about a month before I came and interviewed Roland Robison.

Hirschi: Two months shy of thirty-eight years.

Storey: Were you raised on a farm up at Park Valley?

### **Raised on a Ranch**

Hirschi: On a ranch up Park Valley.

Storey: Did you irrigate?

Hirschi: That's the other part that probably spins into Reclamation, in that the only water we had available to us, and that's a rather dry part of Utah, was the snowmelt that came in the early spring and lasted 'til maybe mid-July if you were lucky. From the streams. No storage. So you used it as it came. Once it was gone, there was no more until the next cycle. If you were lucky, you would get two crops of alfalfa. If you weren't lucky, you would only get one, and then have to pasture the other out for your second crop, for the cows. So we had a cattle ranch, small cattle ranch. That's where I grew up.

Storey: But there wasn't a Bureau of Reclamation project there.

Hirschi: No Bureau of Reclamation project, no. There was a lot of talk about wouldn't it be great to have a project out here, and at one time—later on, of course, they were studying the possibility of moving water from the Pacific Northwest down into the Colorado River. One of the schemes had water coming not into Park Valley, but reasonably close to it. There was some hope that maybe some day the valley would be served by water, but that didn't materialize, and I don't suppose it ever will.<sup>1</sup>

Storey: When did you become aware of the Bureau of Reclamation? Was it when they had summer jobs?

### **Began Working for Reclamation as a Student Aide**

Hirschi: It's hard to tell precisely when I became aware of the Bureau of Reclamation. But when I became intimately aware of the Bureau of Reclamation and what it did is when I was looking for summer work. They had an office in Ogden, which was a construction office, they also had an office, as I recall, in Logan. It was a planning office for the

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1. Mr. Hirschi is referring to the Pacific Southwest Water Plan, introduced in the early 1960s, it proposed to augment the Colorado River with diversions from the Pacific northwest. For more information, see Andrew H. Gahan and William D. Rowley, *The Bureau of Reclamation: From Developing to Managing Water, 1945-2000* (Denver: Bureau of Reclamation, U.S. Department of the Interior, 2012), 741-67.

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Bear River Project, which we never built. The best I can remember was my search of employment that led me to the Ogden Office. That was in 1954. It's possible I even talked to them in '53, but '54 was the first year, as I recall, that I worked for them. So that's really, I imagine, how I became intimately familiar with the Bureau is that summer employment.

Storey: Were you born in '34?

Hirschi: Born in 1930.

Storey: So then you graduated from high school—

Hirschi: Graduated from high school in 1948. Then I stayed on the ranch and helped Dad for a couple of years, then I went on a mission for my church for two years, and then I started with the university in 1952.

Storey: Why did you decide you wanted to be a civil engineer?

### **Becoming a Civil Engineer**

Hirschi: The first year I went there, I didn't select a major. I was thinking about becoming an auto mechanic, because I had done quite a little bit with automobiles. I took several courses in automotive repair. Then for some reason I got the idea, jeez, I'm not sure I want to be a so-called "grease mechanic" all my life. I got to thinking about is this really what I want to do. So I started searching around to other disciplines and became interested in civil engineering because it built things. That's what I said, because it ties kind of back to my youth when I liked to build things. So I thought, jeez, this would be nice to work for an agency and build things. Perhaps at that time I wasn't really thinking about necessarily being in the water business, but that evolved quickly, because I started there in '52, first year my major was not selected, and I selected in '53, went to work for the Bureau in '54 as a student aide.

Storey: You didn't think about going back to the ranch instead of going to college?

### **No Future Staying on the Ranch**

Hirschi: No, there were four boys, and at that point in time we recognized that the ranch was really becoming too small for someone who had to purchase it, pay for it, and then make a livelihood you really had to expand. Now, Dad was okay because he had it paid off, but for one of the kids to take over, it didn't seem to be, from a long-range standpoint, a profitable business, which turned out to be true. Because we ran something like two hundred head, and it's been years and years when a good cattle

ranch would run a thousand head. So all four of us left. All four of us left. Dad eventually sold the ranch.

Storey: Was this a family ranch?

Hirschi: Well, Dad owned it.

Storey: But it didn't come down through the family to him or anything?

Hirschi: No, it did not come down to any of the children. He ultimately sold out in 1971. He moved to Brigham. None of the kids bought it. We wished afterwards we had.

Storey: It didn't come down from his dad or anything?

Hirschi: No, he bought it with his brother, and then later bought his brother out when his brother moved to Brigham City.

Storey: This is actually a very typical pattern in Reclamation employees, that the farm or the ranch was no longer of a size that it was profitable.

Hirschi: It was quite evident at the time we became of age where we had to make that decision. And all of us except the one boy, who had asthma real bad, he knew he couldn't be a rancher, but the other three had to struggle. One was quite inclined to do just that, take over, but he didn't. Probably in retrospect it was a good decision on the part of all four of us.

Storey: Was it something that you had worked at intellectually? Or was it more instinctive? Or what?

Hirschi: As to what to do?

Storey: As to the fact that the ranch was not large enough and so on.

Hirschi: It was something that we had kind of talked about amongst ourselves. I was the youngest. My oldest brother was about nine years older than I am. It was something we kind of talked among ourselves and with Dad. Dad, of course, was the one who could see better than we could. While he wasn't discouraging it, he did see what was happening, that the ranches had to become bigger. Unless you had the assets to become bigger, and Dad really didn't have assets to become bigger fast, then the likelihood of turning that ranch into a sizeable ranch was not too great, given the modest means that we had.

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Storey: Did all of your brothers go to college?

Hirschi: All of them, yes. Two of them became accountants, and the one that had asthma became a medical doctor.

Storey: That's also very typical, our generation right in there is the first time where whole families begin to go to school like that.

Hirschi: Yes.

Storey: What was your first job with the Bureau of Reclamation in '54? Well, before I ask that, how did you get the job? Did you interview with somebody? Did you just fill out papers? Did a professor know somebody? How did that work?

### **Going to Work for Reclamation**

Hirschi: No, I didn't have any connections. I went down and signed up. I'm not sure that they even had, when I think about it, I'm not sure they really had the student aide program in effect when I first went to work. It may have come in the following year. I think it did. I'm not sure. But I don't think they did have the student aide program in effect when I first when to work, but it came into effect shortly thereafter. I just went down and, as nearly as I can recall, told them I wanted a job and why, and I was going into civil engineering, and that certainly the Bureau of Reclamation would be an organization I'd want to look at when I graduated. They had a pretty healthy construction program at the time, and hired me.

Storey: So what did you do that first summer?

Hirschi: The first summer I worked in the Planning Division headed by Francis Warnick [phonetic], and worked with Gale Moore [phonetic]. Our assignment that year was to continue to study the preliminary data for design and construction of Wanship Dam, which is now called Rockport Dam.<sup>2</sup> So we went to Wanship Dam site and put in piezometers and devices so that we could measure pore pressures in the soil immediately downstream of the dam. That data was later used to plot water tables, etc., which was all considered as part of the design structure of the dam. That was my

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2. Constructed in 1957, Wanship Dam is a feature of the Weber Basin Project. "Located 1.5 miles south of Wanship on the Weber River, the Wanship Dam impounds Rockport Lake. The lake has 62,100 acre-feet total capacity, and a surface area of 1,080 acres. The dam, a zoned earthfill structure, is 156 feet high, has a crest length of 2,010 feet, and contains 3,183,000 cubic yards of material. The spillway is an uncontrolled open concrete chute with a capacity of 10,800 cubic feet per second. The outlet works tunnel provides for releases to the powerplant or to the river. The outlet works has a capacity of 1,000 cubic feet per second." See "Weber Basin Project," [http://www.usbr.gov/projects/Project.jsp?proj\\_Name=Weber Basin Project](http://www.usbr.gov/projects/Project.jsp?proj_Name=Weber%20Basin%20Project).

first job that summer.

Storey: Was that actually putting the piezometers in the dam or off the dam downstream?

Hirschi: No. The dam wasn't built. It was preliminary data in anticipation of designing and constructing that. They had some curiosity about the water table levels and the pore pressures that existed at the dam site and downstream of the dam site, and they wanted to plot water tables and pore pressures, etc., and get that as part of the design of the dam, and perhaps the water table's effect on any adverse effects on surrounding lands, if the dam were built. It's hard for me to go totally back and recollect why, but I know that's what we did.

Storey: How long were you out there?

Hirschi: We'd go up every day out of Ogden. It took us back in those days probably an hour to drive out. So we'd whip up there in the early mornings and work all day and then whip back home.

Storey: So then you were staying in Ogden?

Hirschi: We were staying in Ogden. That was the duty station.

Storey: Were you in any kind of government housing?

Hirschi: No.

Storey: You just had an apartment or something?

Hirschi: We never had—oh, you mean in Ogden?

Storey: Yes, while you were working.

Hirschi: No, I just lived with my brother, who lived there.

Storey: That went on for three months or so?

Hirschi: That went on for about three months there in '54, and then I went back to school.

Storey: That must have been pretty extensive study that was going on.

Hirschi: It was. It was quite extensive, and as I think back on it now that you ask the question, I'm not sure what all they used that data for, really. Since I was around a lot of dam

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construction since, I'm not sure what all they used it for, but at the time they felt it was needed, and maybe it was.

Storey: So you went out and placed the piezometers. Did you also then go back and gather data?

Hirschi: I think we dug the pits, too, as I recall. But it was studying the water tables.

Storey: Did your summer job affect the courses you took in any way?

Hirschi: At school?

Storey: Yes.

### **Focus on Civil Engineering**

Hirschi: No. No, that didn't affect it. A matter of fact, back then at Utah State University, which was well known for civil engineering, had pretty much a standard four-year course, and it only got into the minor where you maybe would deviate. Like you'd take out your major in civil engineering, but you might take a minor in structural engineering, design of structures. I didn't take a minor in structures, mine was just kind of molded to the classes in the civil engineering area where the options were whatever I felt I wanted to take at the time. I really didn't specialize in anything other than civil engineering.

Storey: Did you go to school with any other folks who eventually ended up at Reclamation?

Hirschi: I think out of my class, it's probably graduated about 40, seems like it was about 120 of us that started, and only about 35, 40 of us finished. I think I was the only one in my class that went with the Bureau of Reclamation. There were some that went with the Corps of Engineers, F-A-A, [Federal Aviation Administration] and I think I was the only one that went with the Bureau.

Storey: Now, let's see, '54 would have been about—

Hirschi: That was in '56 when I graduated.

Storey: Yes. So you worked for Reclamation again in '55?

Hirschi: '55.

Storey: What did you do that summer?



### Contract Administration

Hirschi: That summer, let's see. Oh, I know. Yes. I worked in Contract Administration. I was thinking right-of-way, but, no, in '55 it was Contract Administration. My main assignment was to check quantities for pay purposes for contractors' earnings. So, whatever, canals, pipelines, whatever, we'd take field notes and either compute or check one another's computations, on how much they were to get paid that month—the contractors. On the case of finaling-out the contract, how much the final contract earnings were. So that's what I done that period.

I did take a leave of absence that summer, also, for what was it, three or four weeks to go to R-O-T-C camp in California. So I worked that summer, other than that leave of absence.

I know that the student aide program was in effect then. When I went back to school in the fall of '55, I know it was in effect then. My service computation date was April 1955. I didn't graduate until '56.

Storey: Who was your supervisor that year?

Hirschi: That year? The division was headed by Rex Greenhall [phonetic], and I worked for Dwayne Carlson [phonetic], who worked for Rex—Dwayne Carlson, who later went to Denver and worked there for years and years, and retired a number of years ago.

Storey: What was his personality like as a supervisor?

Hirschi: Dwayne? He was nice to work with. Of course, I used to drop in and visit him years afterward. He moved to Denver and I was in Lower Colorado [Region]. When I'd go up there on business, I'd talk to Dwayne. He was a nice guy.

There was another fellow that I worked closely with. He and I were together. One of us would compute and one would check. Beeston—Tom Beeston. It was Tom Beeston I worked with.

Storey: How would you spell his name?

Hirschi: Gees, Tom Beeston—B-E-E-S-T-O-N, I think. I think it was B-E-E-S-T-O-N, Tom Beeston.

Storey: He was also a summer hire?

Hirschi: No, he'd been working there, I think, for—he graduated and had been there just a couple

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of three years, whereas Dwayne had been there maybe more like seven years. I'm guessing.

Storey: So then you went back to school for your senior year.

### **Terminated from Air Force ROTC**

Hirschi: Then I went back to school for my senior year. The Bureau was good to me in those years, because they let me go to that summer camp in '55 with the Air Force. And then they decided that they had too many cadets in the program, in the Army, and so they terminated in our—we'd been to summer camp and everything. In our senior year, the Air Force terminated some of us based on whatever they could use, and the only thing they could find on me, it's interesting, it was a hammertoe. It's a toe that was too long, and I wore such tight shoes when I was growing up that it grew into a shortened toe by pushing the knuckle out, and that was called a hammertoe. They said that that would probably irritate me when I was flying jets, and maybe as I was coming in to land at a crucial moment, that toe would irritate me and distract me and I would crash. So they said, "We're going to terminate you."

I pursued that a little bit. It happens that I could have had that hammertoe cut off and still met their requirements. The Army R-O-T-C came over and said that was the worst thing they'd ever seen in their lives, terminating us with only, jeez, it was midway through my senior year. They terminated about six of us. One of them put down on his application he'd walked in his sleep once, and they terminated him. So the Army offered to take us, and I evaluated it. I'd gotten married in January that year, and my wife didn't want me to fly, so I switched to Army.

So I applied to the Bureau of Reclamation for the opportunity to go to summer camp. Now, I had to go back to summer camp for the Air Force in 1956, and the Bureau granted me that—

Storey: You mean for the Army in '56?

Hirschi: Excuse me, for the Army, yes. Now I had to go to the Army R-O-T-C. So the Bureau gave me that opportunity to go to the camp, I think once, if I remember, for three weeks or so. Right out of school. Then after that, I went back to work for the Bureau, until I went into the Army full time for six months.

Storey: Where did you go to work?

### **Returned to Reclamation in Lands Division**

Hirschi: I went back to Ogden, and that's when I worked in lands, right-of-way, purchase of lands. I worked there until I went into the military service with the Army at Fort Belvoir, Virginia, in February of '57.

Storey: What office was in Ogden?

Hirschi: It was Weber Basin Project Office. It was building the Weber Basin Project.<sup>3</sup>

Storey: Who was the Project Manager?

Hirschi: Clinton Woods.

Storey: Was he a Construction Engineer?

Hirschi: Yes. He had been a very reputable construction engineer during his career. I don't know how many years he had in when we [unclear]. Many, many. He'd worked on some very significant dams, and I can't remember. One of them was in Lower Colorado. I don't remember whether it was Parker Dam or—it may have been Parker Dam. But one of those down there he worked on, and up in the Pacific Northwest [Region]. He'd had a lot of experience in construction. So they put him in as a Project Manager, called him a Project Manager and put him in over the Weber Basin Project, and he was there almost until he retired, not quite. They moved him into the regional office.

Storey: What was he like?

Hirschi: Great. Great man. In fact, I saw him. He came up here to visit me probably about four years ago. His son brought him up to see me, and he was still mentally sharp. Had to walk a little tenderly, but so we had a little visit. He's one of the best supervisors I ever had. If he ever had any drawback, it was being a little bit too kind maybe at the wrong time.

Storey: What was his name?

Hirschi: Clinton Woods.

Storey: Do you know if he's still around?

Hirschi: I would guess that he is. I haven't read anything or heard anything that he passed away.

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3. For more information on the Weber Basin Project, see Christopher J. McCune, "Weber Basin Project," Denver: Bureau of Reclamation History Program, 2001, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

Storey: Where did he live?

Hirschi: He lives here in Salt Lake. I wouldn't be surprised his name's in the phone book. If it's not, I imagine we could trace him. But he was good.

Storey: They put you doing what?

Hirschi: When I graduated from school in June of '56, so it was probably about August, I would guess, when I started, August '56 when I came back to the Ogden Office to work in the Lands Division.

END SIDE 1, TAPE 1. JUNE 28, 1995.

BEGIN SIDE 2, TAPE 1. JUNE 28, 1995.

Storey: So you were in the Lands Division of the Ogden Office. Were you actually going out and acquiring land or were you doing office functions?

### **Analyzing Survey Data for the Weber Basin Project**

Hirschi: We were doing office functions. We had surveyors that would survey. Then we would take the survey data, and using coordinates and the calculators, we would put computations to work to describe the problem and tie it to section corners and if needs be, we went out and looked [unclear], describing the problem [unclear], and on some of them where you'd have a canal, you'd take like fifty feet on the left and fifty feet on the right along the following described centerline and then tie at the section corners. It was pretty simple.

Others you'd take what was called metes and bounds where you would go this way northwest fifty-seven degrees, forty seconds, and then east, and describe it and then end up with so many acres, more or less. That was quite interesting. I didn't want to make it my career, but it was an interesting experience.

Storey: Was this part of a rotation program?

Hirschi: I don't recall that I was on any rotation program per se. There was a desire to give us a variety of experience, but I personally wasn't on any scheduled rotation.

Storey: So then you went off for six months to the Army.

### **Planned for a Two-Year Hitch in the Army**

Hirschi: Actually, it was a two-year hitch, I thought, initially. The Bureau and I had planned for

two years, and I was due to report in something like December. Well, it turned out my wife was to deliver our first child in November, so I wrote to the military and asked them if I could have it deferred until January, and they wrote back and said, "You bet. We'll accommodate you in February 1957." So I was planning a two-year stretch with the military at that point.

Then later on, as I recall, not too long before we reported to duty, they sent a letter and said, "We have decided that we're flooded with two-year military people right now, so we are changing you to six months." It was back then when the six-month program came into being. So they just arbitrarily changed me. Of course, at the time I thought, "This is a good deal." But they said, "At the end of the six months, you'll have the option of deciding if you want to have a career with the military." So I went back there in February to August of 1957, Fort Belvoir, Virginia. Then I decided not on a career, and came back.

It was at that time, I mentioned to you earlier, that's when I went to California to see if I wanted to change jobs. I had a job back at the Bureau. But I thought, "Before I launch back into this career with the Bureau, I'm going to explore things a little bit." Ended up I didn't explore at all.

Storey: Was this in the Los Angeles area?

Hirschi: It was in Los Angeles, and they were desperately looking for engineers in the county, particularly in the county of Los Angeles, civil engineering work. I'm quite confident I could have gotten a job with them. My brother kind of discouraged me. He'd lived there probably three or four years now. He said, "This really isn't the place where us ranch boys should be."

It was not congested comparatively to now. But I thought, "I'm not sure this is where I want to be. I kind of like small open spaces." I just headed back home and, well, then my boy got a medical problem, and we needed to get back on the payroll. So I went back to the Bureau. And from that point on really never, that I can recall, really never gave any further thought of leaving the Bureau of Reclamation. Frankly, the choice was good. I'd redo it all over again during that period of time.

Storey: What did they put you to work at when you came back?

### **Moved into the Design Division**

Hirschi: When I came back, I think I went back into the Lands Division again for a period of time. Then I moved from there up into design for a period of time, and then I became a

construction engineer out on Willard Dam<sup>4</sup> and Willard Canal. Then I could see the handwriting on the wall that Weber Basin Project construction had reached its climax and it was on the downward skids. I thought, "I'm going to get out of here while I can maybe get a promotion to leave."

So I applied for two or three jobs and landed one in Lower Colorado. Moved down there in 1965. So I had quite a variety of experience at Weber Basin, which really set the framework for my entire career. Weber Basin Project was, and is, one of the best, and I'm speaking one of the best, projects that was ever built by the Bureau of Reclamation for the purpose of serving the people in the community, and at a pretty reasonable price. We spent, I think, around 75 million to build that project and the district took over and did some clean-up work in the end. That's really a jewel project.

Storey: Were you there right at the beginning?

### **Weber Basin Project**

Hirschi: Not right at the beginning, but not too far behind. I imagine that—let's see. There was construction going on at the Gateway Canal and Gateway Tunnel while I was working. So pretty much at the beginning—pretty much at the beginning. Pineview [Dam] enlargement had started. In fact, Pineview enlargement took my wife's dad's property, and that wasn't a very pleasant experience. They took the property, or a large part of it. It was under construction, I think, when I went to work for the Bureau. So I was there probably about two years after I started. Saw most of it.

Storey: Did you see a lot of the supporters of the project in your years there?

Hirschi: In those days there was 100 percent, for all intents and purposes for the project.

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4. Mr. Hirschi is referring to the Arthur V. Watkins Dam. "Flows that cannot be controlled by the mountain reservoirs, as well as winter releases through the powerplants, are diverted from Weber river at the Slaterville Diversion dam west of Ogden and carried 8 miles north in the Willard Canal to Arthur V. Watkins Reservoir. The earth-lined canal has an initial capacity of 1,050 cubic feet per second. About 5 miles from the canal heading, a turnout diverts water into the Plain City Canal, a privately owned irrigation system.

"Twelve miles northwest of Ogden on the shore of the Great Salt Lake, Arthur V. Watkins Dam is an offstream structure with a structural height of 36 feet. The dam is about 14.5 miles long in a rough rectangle, contains about 17 million cubic yards of material, and encloses a reservoir of 215,120 acre-foot capacity. Its siphon spillway has a capacity of 2,000 cubic feet per second. The 300-cubic-foot-per-second capacity outlet works functions only as a reservoir drain.

"During the irrigation season, water can be pumped by Willard Pumping Plants No. 1 and No. 2 back through the Willard Canal from Arthur V. Watkins Reservoir to Slaterville Diversion Dam and on into the Layton Pumping Plant intake channel for irrigation of lands lying along the shores of Great Salt Lake." See Weber Basin Project, [http://www.usbr.gov/projects/Project.jsp?proj\\_Name=Weber+Basin+Project](http://www.usbr.gov/projects/Project.jsp?proj_Name=Weber+Basin+Project).

Storey: Except for your wife's dad.

Hirschi: Except for my wife's dad. He didn't want to sell. They said, "Well, tough, we're going to take it," and they did. Her family's been very unhappy ever since, including my wife.

Storey: Did they ever find a replacement place?

Hirschi: No, they just moved. This was up in Huntsville, and they lived in the upper end of the surcharge area for the reservoir. In fact, very questionable as to whether they really needed to take it, especially using today's criteria. But they took it, and it's being utilized as a campground. You won't see water on it unless you have a full reservoir and tremendous surcharge comes in. In other words, you won't see water on the property they took. The family's been quite unhappy about that. They didn't think they got a fair price. But they moved off.

Storey: Rather than try to continue ranching, was it? Was it ranching?

Hirschi: Yes. Well, he worked in Ogden anyway. They just lived there.

Storey: So it's fairly close, then.

Hirschi: Yes, it's up the canyon. In those days you could travel it in twenty minutes. You couldn't do it today, but it's up the canyon probably to their house, probably fifteen miles, fifteen, twenty miles from Ogden.

Storey: Tell me about the supporters of the project.

Hirschi: Well in those days you had tremendous support in this valley particularly for water development, because the old pioneers came and settled this area, perhaps were the forefathers in developing water projects. So people were very cognizant of the need to have storage facilities. You had to store this water. You couldn't just do what we'd done at Park Valley, take it as it came. You had to have the ability to store it and use it then in late fall. So that was recognized. So like I say, I don't suppose there was, in my knowledge, was anybody that opposed it, except those who lost property because of it. It was needed for the project.

Full support, there was initially—there was some concern later on in about, I would say about '62, when it was clear we were going to exceed the repayment contract amount. Costs were going to exceed the repayment contract. So we had to renegotiate the repayment contract, which was easy to do with Weber Basin, but it had to be put to the vote of the public involved. There was some concern then as to whether or not there would be any open opposition to it, and whether it failed. It went

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through with flying colors.

Storey: What was the Weber Basin Project? What were its major features?

### **Major Features of the Weber Basin Project**

Hirschi: The major features were to construct a series of dams and reservoirs and carrying conveyance systems, be it canals, aqueducts, laterals, mainly for the purpose of irrigation of farm crops, mainly, agriculture. Now, it's since took on the significant role in M&I [municipal and industrial], but I would still think the majority of the water's being used for agriculture, even today.

It was an ideal situation for Reclamation, because you had two river, the Ogden and the Weber. The Ogden River Project<sup>5</sup> had been built on the Ogden River, which flows into Ogden out of the Huntsville area I talked about, through Pineview. That was the Ogden River Project which had already been built by the Bureau of Reclamation, and there was a low Pineview Dam on the Ogden River, and that project served parts of Ogden, and then water ran all the way up to Brigham, another twenty miles to the north in a canal. I don't remember what period of time that was built, but I would probably guess in the forties.

Then the Weber Basin Project was designed to take further advantage of the waters on the Ogden which weren't being stored to capacity, and then develop the Weber. So what we did is, on the Ogden River, we enlarged Pineview. We built the dam higher, and that was under construction in 1956, probably started, I guess, in 1955.

So we enlarged that to store additional water, and then we built a dam upstream of Pineview, called Causey Dam, for storage also. So we increased the storage capacity tremendously on the Ogden, then we went on the Weber, which is the next major stream to the south. It starts up in the high Uintas. It joins with the Ogden River on the west side of Ogden. We built on the Weber, we built—there were some dams that the Bureau had built earlier up in there. We built Lost Creek Dam, Wanship Dam, we replaced East Canyon Dam. Seems there's one other I seem to miss, but anyway, we built all those storage dams.

### **Developed a Holding Reservoir in the Old Salt Lake Bed**

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5. "The Ogden River Project, in north-central Utah near Ogden and Brigham City, furnishes an irrigation supply to almost 25,000 acres of land lying between the Wasatch Mountains and the Great Salt Lake, and a supplemental municipal water supply for the city of Ogden." For more information, see Eric A. Stene, "Ogden River Project," Denver: Bureau of Reclamation History Program, 1993, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).



Then we did something else which is unique to the Bureau of Reclamation. We went out into the old Salt Lake bed after the Ogden and the Weber [rivers] joined. We built a canal that ran north in to Willard about fifteen miles. At that point, we took part of the old Salt Lake bed and developed it into a holding reservoir.

And what we did is we designed the system so we could run water that came out of the Ogden and Weber through powerplants. The powerplants that Utah Power Line had, they had an exclusive right to generate power in the winter. That water that was used to generate the power would flow into Great Salt Lake and be wasted. So we captured that water. After it went through the powerplants, we captured that water, ran it north through our Willard Canal that we built, gravity flow into Willard Dam, which we built. Then we had a pumping plant in Willard Canal where we could pump it out of Willard Dam back to the confluence of the Ogden and Weber rivers and use it for agricultural purposes. You follow me?

Storey: I follow, except I thought you said this was below the confluence of the Weber and Ogden.

Hirschi: Yes, but then there was lots of places you could use the water on agriculture further west. Once you brought it back from Willard Dam, through Willard Canal, back to the river, then you could use it for agriculture to the south, to the west, to the north, and take water then that came out of the Ogden or Weber that would have been used to satisfy those water rights to use elsewhere, including through the Davis Aqueduct, all the way to north Salt Lake.

Storey: Let's see if I'm getting this correctly. You had a series of powerplants on—

Hirschi: A series of dams and reservoirs. Most of them we didn't build the powerplants on them then.

Storey: Yes, but Utah Power and Light had—

Hirschi: They had some dams they had built. They had at least one dam, one powerplant built on the Weber, and I think they had one in the Ogden, that they had built and had obtained a right—

Storey: To use the water.

Hirschi: —to use so much water to run those powerplants summer, winter, year round, and that was before we came along in the Weber Basin.

Storey: So our rights were subordinate.

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- Hirschi: That's correct. So we devised this method of capturing the water after they had used it, just before it got into the Great Salt Lake.
- Storey: Then we carried it back, but it sounds to me as if it's below where the powerplants were. That's what I'm confused about.
- Hirschi: Oh, yes, way below. Way below. The powerplants are up in the canyon, so to speak. But where we built the diversion canal is probably, oh, heck, fifteen, twenty miles or so further west.
- Storey: Why didn't we capture it before it got there? If I'm understanding—
- Hirschi: Because they had the right to run it through the powerplants, so we had to capture it after.
- Storey: Right. I understand that.
- Hirschi: Why did we built it where we did?
- Storey: But if I'm understanding, we captured the water and sent it back to the confluence area of the Weber and Ogden.
- Hirschi: Okay, I think I can explain it. Once the water passed their powerplants, there was no other suitable cost-effective place to store it.
- Storey: Gotcha.
- Hirschi: Other than out in what was conceived and designed and built as Willard Dam and Reservoir.
- Storey: So we would let it flow down there—
- Hirschi: Let it flow on down—
- Storey: —then we would move it into Willard Dam and Reservoir—
- Hirschi: —move it into Willard and hold it—
- Storey: —and then we would move it back east toward where it had come from.
- Hirschi: —and turned it right back from whence it came. To give you the picture, take, for instance, the Weber River. A sizeable share, probably most of the Weber River water,
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was flowing into the Great Salt Lake and would only be used as it came through. What happened is we built these reservoirs like Lost Creek and East Canyon enlargement, and for some reason I can't think of the other one—I'll think of it—where we could hold water upstream.

Then we built the Gateway Canal and the Gateway Tunnel and the Davis Aqueduct, which allowed us to take the water that we had held up in these upper reservoirs and bring it through these canals, tunnels, and aqueducts, all the way from Weber River to north Salt Lake, which is about twenty-five, thirty miles or so.

### **"It was a Beautiful Exchange"**

Now, that water which would have gone out and satisfied downstream water rights during the summer, we could satisfy by bringing water out of Willard Dam and Reservoir. So it's exchange. It was a beautiful exchange, one that I haven't seen in the Bureau before. It could exist somewhere. But this is a beautiful exchange concept, and it's proven to be very flexible.

The district has added some other capabilities since, that allows them to move water around. So you can take water out of the Ogden, you can take water out of the Weber, and you can move that around to satisfy needs and demands. At one time there was a concept of tying the Bear River into the Willard Dam Reservoir so that you would have the Bear, the Ogden, and the Weber tied together. And you know what? There's a diversion that the headworks of Weber that goes into Provo [River]. It isn't beyond the realm of possibility to have the Bear, the Ogden, the Weber, and the Provo all linked together in some kind of exchange system.

Storey: Exchanges are fascinating.

Hirschi: Fascinating. The Weber Basin was a fascinating project. Of course, I worked on some big ones after. But Weber Basin, in my mind, stands out as one of the best possible cost-effective projects that the Bureau of Reclamation ever built. It's a dandy.

Storey: Is there one water district?

### **The Water Districts**

Hirschi: One water district. There's two districts up there. One's the Ogden River Water District that takes care of that original project I talked about on the Ogden. But the Weber Basin Water Conservancy District then had the repayment contract with the Bureau of Reclamation. It took over responsibility for the project, and it's been a marvelous district. It's done an excellent job. It's one of the few districts—well, I won't

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say that. It's a district that seldom feuded with the Bureau of Reclamation. I mean, they had a lot of respect, confidence in the Bureau of Reclamation. We had a splendid working relationship with them during construction, and we have ever since. It's been one of the best districts I've seen, to really take pride in the project, and keep the maintenance up, operate and maintain the facility.

Storey: How are they doing on the repayment?

Hirschi: Fine. Fine. We gave them an R&B [rehabilitation and betterment] loan here probably in '92, to rehabilitate the Gateway Canal. It was built in kind of an area that was prone to slides, and when we built it, we recognized that we could have some problems with it, and over the years it has moved and was getting ready to slip off the side of the mountain. So we gave a contract to rehabilitate, put some of that in tunnels, those bad slide areas. That construction is probably ongoing now.

Storey: When you went back to the Lands Division, were you doing the same thing as before you went into the Army?

Hirschi: Yes.

Storey: Basically mapping and drawing up the—

Hirschi: Yes, drawing up these descriptions, describing the property, and preparing maps of its location, and then that would be used in the legal documents to purchase the property.

Storey: You mentioned you didn't want to make that a life's career.

Hirschi: No, that wasn't quite building things. I wanted to get out and build things with my hands.

Storey: So the next step was to go into design.

### **Construction Engineer for Willard Canal and Dam**

Hirschi: So then I went up into design and worked there for, I don't know, two or three years, I guess. Let's see, I came out of the military in fall of '57. I must have spent several years there in right-of-way, because I think I simply—I probably spent about three years in right-of-way, then I think I went up into designs for a couple of years, from '60 to '62, and then from '62 to '65 I was construction engineer out at Willard Canal and Willard Dam. The dam had four phases, and I was on the fourth phase. The canal I had in its original construction.

The dam was a fascinating—it's the only one the Bureau has ever built, to my knowledge. It was fascinating in that, see, we took the old lake bed of the Great Salt Lake. The bed was—the old loam deposits, the stability wasn't there to hold a dam, you had to develop the stability. So the dam was designed in four stages. The first stage was to develop a pad of about 500—well, maybe it was wider than that, probably more like 1,000, somewhere between 500 to 1,000 feet, I guess, in width. The first pad that was laid out, actually, most of it into the water, okay, of the shallow Great Salt Lake. It was a 16-mile dam in length. The original pad that went out that brought the ground level above water level was stage one. It was 16 miles around. That was the first load on this old lake bed, and that settled several feet. I wouldn't even guess as to how much that settled.

Then came the next load which was not quite as wide. See, you started out at this whatever. Let's just call it 750 feet wide, for talking purposes. Then the next level which may have been, say, five feet in depth, was, say, only 500 feet wide. That was a second load that went on, and you had tremendous settlement again. Then come the third phase, which, say, was 250 feet wide for, say, five, six feet in depth. That went all the way around. That was an additional load, an additional settlement.

Well, gradually as this settled, it squeezed the water out of these old lake bed sediments and consolidated that material, consolidated it into a density that would hold the foundation of the dam, the final, which was the fourth stage, which is the one I was on, which then brought in the big depth, and we rolled in at least fifteen feet.

END SIDE 2, TAPE 1. JUNE 28, 1995.

BEGIN SIDE 1, TAPE 2. JUNE 28, 1995.

Storey: This is tape two of an interview by Brit Storey with Weston Hirschi, on June 28, 1995.

. . . maybe fifteen feet on this last time and then had a narrow width on it.

Hirschi: Probably was about fifty feet wide at the base where we started, and then the top was only about twenty-five feet wide at the top, but we had to leave enough width in some areas. I say twenty-five feet. That's where we did not expect additional settlement. But in those places where we expected additional settlement, where the initial pad may have been, say, a thousand feet, our top was more like—could have been a hundred feet, I don't remember the exact, to allow for additional stages. During the construction of the fourth phase that I was on, I think during the construction period, which was three years, we had upwards of five, six feet of settlement while we were building, whereas we started with what we thought would be a depth of [unclear], where the original depth was fifteen feet based on measurements. We knew we were going to have five, six feet of settlement. So we actually put in more like twenty, twenty-two feet of

material.

Then there's been a sixth, here a few years ago, they raised it again in some areas, the sixth that we anticipated. That's all we anticipated. Excuse me, the fifth. The fifth. That's about what we expect.

We and Denver were very pleased with what happened on Willard. The darned thing performed just precisely like it was designed to do. We never had any failures, which could have happened, you know. We knew it was taking some risk when we built it, that old lake bed would slide. It's been there, it anchored, it's performed just the way that we envisioned and hoped. I remember this. It's sixteen miles around it, sixteen million yards, and sixteen million dollars. Sixteen, sixteen, sixteen. A real jewel.

Storey: But the water that was involved, you were talking about squeezing out the water from the foundation area and so on. Wouldn't that have been salt water?

Hirschi: Oh, yes. Oh, yes.

Storey: Wouldn't that affect the water that was stored there and cause problems for the irrigators?

### **Removing Salt from the Reservoir**

Hirschi: Well, after they laid the first pad, schedule one, then it cut the water off from coming in from Great Salt Lake. If Great Salt Lake raised, it couldn't come in. So it cut it off. Now, you had water inside, granted, but, see, over the years, see, that construction of that, when that was started—I'm trying to think when they started that first pad, but I wouldn't be surprised—I was on it for three years. I wouldn't be surprised if the construction period was more like ten years for that first pad.

Once the water was cut off, then the only thing you had inside was what was there when you cut it off, plus whatever ran in. But, see, tremendous evaporation, and so over the course of time, the water, other than being high in the ground table, essentially disappeared. When I was there those three years, there was places where there was shallow water, but by and large, it was dry.

Now, we did build an outlet works at the north end, and I think that was built mainly for just that purpose, if they had to flush it once. As I recall, that's the main reason it was built, because, see, you could control what went in. It's not like most dams, you could control what went in.

Storey: Because it's an off-stream storage.

Hirschi: As I recall, it was decided to build that outlet works just in case. The first filling, or partial filling, was a little too salty because of the residue. We could drain it all out and start over again. That's what I remember.

Storey: Now, when you say you were construction engineer, does that mean you were the Project Construction Engineer?

### **Hierarchy on the Weber Basin Project**

Hirschi: They had Earl Christianson, who was over all construction on the whole Weber Basin Project, and there was a lot going on, and I worked—okay. He was over all of it. Then under him was Marcus Cooley, who I worked for direct, initially. He had Willard Canal and Reservoir and something else—Layton Canal, I think it was. So I was really what you would call probably in today's terms more like a field construction engineer—on-site construction engineer.

Storey: What did that entail?

Hirschi: I functioned pretty much by myself as far as dealing with the contractor. All of the interface with the contractor was handled by me, be it pay items, problems during construction, any changes in design, what have you. It was all handled by me. Marcus would come out and we'd discuss matters between supervisor and subordinate, but for all intents and purposes, me and the staff I had pretty well ran the show.

Storey: How many staff were there?

Hirschi: I think with surveyors, inspectors, lab people—gosh, I imagine we could have had thirty-five employees, and that was just on the dam. Then later they assigned me the canal, too.

Storey: Tell me about the surveyors. What were they needed for?

### **Surveying Work**

Hirschi: The surveyors?

Storey: Yes.

Hirschi: They used the old instruments, you know, used to set up and level, tripods. Their main function on the canal was to—several-fold. One was to lay out the fill stakes; in other

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words, the alignment of the dam, fill stakes, to tell the contractor how much to fill. We had to take it up in stages. We couldn't roll in and put in all fifteen feet. We took five feet of lift all the way around before we'd start the next five feet. See, we had to load that thing. We wanted to load it over time, not quick. We wanted to load it over time so that it would settle over time.

Storey: Settle slowly.

Hirschi: You load too quick, you can have a blowout. That was particularly more true in the first, second, and third sketches. You don't want to load too quick, you'll blow out one. But even on the fourth schedule, we wanted to take it slow. So it was every five feet. It was five-foot lifts. So they would stake all the way around sixteen miles where the contractor was to start his filling, that is, the outer extreme limits, and what the slope was of the fill. That was one of their main functions.

The other main function was to install, which was easy. We had two-foot-square, I think they were, metal plates—two-foot-square metal plates, probably half-inch thick—that we installed at the beginning of our final lift, fourth stage, as a permanent device of measuring settlement. Every thousand feet in the center of that lift we were bringing up. At the initial start, they would throw down one of these plates and survey it in so that we could later find it. (laughter) I'll tell you, I used to work with those surveyors quite a bit to make sure that if we had to find those. We could find them, because after we got the full lift up, then we went back in and located those plates, and drilled down, and put in a pipe, so that we could measure settlement from that point on for the record, so that you can determine over a course of time when you wanted to go back in and lift. Then Denver was interested in how much it was settling anyhow, and how fast.

So that was always a worry to me that we could truly go back and find those two-foot-square plates. You know, we found every one of them, as I recall, except, on the first try, except one, I think, and I believe they eventually found it, but it was not quite where it was supposed to be, but I think they found it. I think it was only one. So every thousand feet, around that. The part of the dam that could settle, and that was most of it, had one of those plates. That was quite a survey job.

Storey: If I'm understanding this, what you have is a dam that's really all dam. It's a big circle—

Hirschi: Yes, it's a big circle.

Storey: —that's all dam—

Hirschi: That's right.



Storey: –all the way. There are no natural slopes.

### **"Just Flat Built"**

Hirschi: None. Zero. Just flat built. You go up there in that old saltbed in the old Salt Lake and it looks as flat as it can be. We just started at the northern end there and headed southwest. Makes one turn and goes out a ways and makes one turn, heads southwest and runs down there X miles, and then it cuts east X miles, then heads north, a few bends in there. Around the whole thing is sixteen miles. I wouldn't even venture to guess how many times I drove around that in three years of construction.

Now, on the southeast portion of the dam, the final leg that comes around to the north, that really was not old saltbed, old lake bed. It was non-lake bed, in modern times, that is. So the footing there was solid. Actually, all we did in that area was scraped off the weeds and started laying in Zone One material. That's all we did. That probably covered a stretch of five miles—three, four.

Storey: It's just a big dike.

Hirschi: Didn't have to worry about squeezing out the water and compressing that old lake bed. It doesn't make a fold loop and close. I would imagine from the way the crow flies from the beginning where the outlet works are located to the end where the crow flies, maybe only a couple three miles.

Storey: So that was a natural side to the lake.

Hirschi: That was a natural side, yes.

Storey: To the reservoir. So the surveyors did those two primary things. What about the inspectors?

### **Inspector Functions**

Hirschi: The main function of the inspectors was like on any earth dam, to monitor the quality control. And that goes mostly to when you're hauling in Zone One material, that it is truly Zone One, the impervious part, and it has the proper density. That they didn't allow the contractor, which became a problem, to not build the lift higher than they were allowed under the specs. On mine it was five feet. I don't know for sure on the other lifts what they were. But on mine, the contractor was constantly wanting to go up to five, six, because it's more economical to take it up, but we wouldn't let him. But we had to watch him or they'd take it up, you know, fudge another foot or two. So that was something we watched very closely.

Storey: They took samples?

Hirschi: Yes, density samples. Frequently. In both Zone One and Zone Two.

Storey: Was this twenty-four-hour construction?

Hirschi: During the fourth stage, it was not twenty-four hours. I'm not sure on the others. I doubt it.

Storey: Was it an eight-hour shift or what?

Hirschi: It was mainly just an eight-hour shift, yes. Five days a week, yes, unless he had special needs to run Saturdays.

### **Placing the Riprap**

When we got into hauling in the riprap, and this is another thing, if you want to see some beautiful riprap, that's where you go. We were allowed up to yard size. Couldn't do it today, we went up east of Willard, right up there on the side of the mountain, some big rock outcrops. We went up in there, and that's where we got the riprap, and we would drill tunnels. We would drill tunnel back into the side of the mountain ninety feet, and then take two Ys for another twenty feet or so, load that with explosive, which, interestingly, is the same thing that was used pretty much in Oklahoma.

Storey: At the Federal Building.

Hirschi: Detonated with dynamite. So they'd load those Y chambers with this ammonium nitrate to be detonated by dynamite, and then set her off. Of course, that'd bring down a tremendous amount of riprap, but it was still, a lot of it was big, so they would drill with just a regular drill and put a stick of dynamite in them to blow them apart.

That was quite an operation, and that whole sixteen miles, of course, is laced—that last lift that we put in on fourth schedule is laced with this riprap, which is beautiful riprap, which varied from size, oh, maybe a foot in diameter to a yard, some of them a yard massive-size riprap. That's all around that sixteen miles. They had quite an operation. They bought about sixteen new trucks for that. I think they worked Saturdays for that. It's a beautiful riprap job. You could never get by environmentally doing today what we done then.

Storey: Let's see. You also had a lab there.

### **Lab Responsibilities**

Hirschi: We had a lab out there. That's when John F. Kennedy was killed. I'll never forget that. We had the lab there. It was the lab that, as I recall, it picked up on—they had a radio going off to the labs. There was a lab that picked up on the assassination of Kennedy. I remember coming in from the field there. Someone ran out and said he had been shot. But we did all our labwork right there.

Storey: This would have been mostly testing the material for compaction?

Hirschi: Yes, and whatever concrete we had, which was essentially just the outlet works.

Storey: Who chose you to be the person out there?

Hirschi: Clint Woods.

Storey: He was the Project Manager?

Hirschi: Project Manager.

#### **Project Manager's Functions**

Storey: This was not a function of the Chief Engineer?

Hirschi: Nope.

Storey: Why not?

Hirschi: In those days, Clinton Woods was the Chief Engineer as far as Weber Basin Project was concerned. With his experience and knowledge of construction, that's the way it was set up. He made all the decisions as it pertained to changes after the specs were made, pretty much the latitude to do that. We sent the design data in to Denver, they prepared the designs, and from that point on, it was pretty much Clint Woods's program as far as the people he used from construction purposes, decisions that were made as it pertained to interfaces with contractor. He'd consult with Denver as he felt the need to do so.

That's the way it was until the reconstruction of the East Canyon Dam. That's when the change came about. But I don't know what all brought the change about; it was probably a movement afoot in the whole Bureau of Reclamation. I don't know for sure all what brought it about, but I know that the decision was made at the time to put Bill Grossclose [phonetic] as the Construction Engineer over East Canyon Dam. But up until that time, Earl Christensen, Clint Woods ran the show at Weaver Basin.

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Storey: So the Chief Engineer chose Mr. Grossclose?

Hirschi: Yes. Chief Engineer. I don't know if he had consultation with Clint Woods or not, but Bill Grossclose, of course, worked in construction all his life, and I knew very well, was the Construction Engineer at East Canyon. He used to come into our staff meetings all the time. We held them weekly. That was under construction when I moved to Lower Colorado.

Storey: You were there for about three years, you said, as construction engineer.

Hirschi: Construction Engineer, as I recall, from '62 to '65.

Storey: What had you been doing in design from '60 to '62? Had you actually been designing things?

### **Work in the Design Division**

Hirschi: Mainly what we done there was collected the design data and sent it into Denver. For instance, on Causey Dam, on the Ogden [River], we had to relocate the highway that was in the bottom of the canyon up on the side slope so that they'd have access to the northern end. I remember spending many a days out there amongst that old scrub oak and everything out there trying to select the alignment for that road. But anyway, we'd gather design data like that and draw up our preliminary plans and send it into Denver.

One of the main things I worked on was on a distribution system out here in Woods Cross, which is just northwest of here about fifteen miles. A lot of the homes down there decided that they wanted to use this water that came out of the Weber River through the Davis Aqueduct to water their lawns around their houses, rather than use—well, they were using it for both, their agriculture, but they decided they wanted to use it for around their homes. So we actually designed and built quite an extensive pressure system that took water right to their houses where they could use it to irrigate, not culinary purposes, but irrigate their lawns and gardens and shrubs and things. We designed quite an extensive distribution system for the Woods Cross area.

I and Don Disnik [phonetic] worked on that extensively collecting design data. You'd have to go out there and talk to the farmer and see where he wanted the outlet located, and how you were going to get it there. Collect all that design data, then we sent it into Denver for final designs, and they designed it and sent the specs out. Then so many changes occurred after that we had to make a lot of changes after the contract award. So Denver gave Don Disnik and I the authority to make those design changes. So we made quite a few design changes on outlets, and recompute the concrete needed to anchor the outlets. I don't know what all we worked on. Plenty to keep us busy.

Storey: You were saying that earlier that one of the reasons you decided to become a civil engineer was because you wanted to build things.

### **Enjoyed Construction**

Hirschi: True. True.

Storey: Did you enjoy building Willard?

Hirschi: Oh, yes.

Storey: Did it meet your expectations?

Hirschi: Yes. That was a fun job, it really was. It was fun. Then with Willard Canal, too, had them both. That was really a fun job. I really enjoyed it.

Storey: At that point you would have been in Salt Lake about eight years or so.

Hirschi: Actually lived in Ogden all that time, because that's where the project office was.

Storey: I'm sorry, yes, in Ogden.

Hirschi: The regional office was here in Salt Lake.

Storey: What stimulated you to look for a job outside the region?

### **Acreage Limitation Issues**

Hirschi: Come '65, 1965, I was scheduled to go from Willard Dam and Canal to—well, I thought I was going to have more work. One was to do Warren Canal, which was out there in the Willard Canal area. Then they ran into problems with that, because of the—oh, what is it? I can't think of it, that you can only irrigate so many acres. Oh, I can't think of the name.

Storey: The acreage limitation.

Hirschi: The acreage limitation. It turned out that the farming involvement there wouldn't meet the laws. So Warren Canal was not built, and that has never been built. Had that been built, it could have changed my entire career, but that wasn't.

### **Time to Move**

Then it was clear at that point that the major construction was in the final wind-up, because Layton Canal had been built. The other part they decided to terminate, the Warren Canal wasn't built, Lost Creek and East Canyon were under construction. Anyway, I can see that my tenure in Ogden, at best, was no more than four or five years. And I thought if I stay here, then I may not be in the driver's seat as far as decisions are made. You could even get caught in a reduction in force; you could have to take a downgrade; you could end up with no job. I decided that since I wasn't going to be able to finish my career there, I'd jump. I'd make the decision to jump. That's what I did.

Storey: How did the job that you took come to your attention, and was it the first one?

### **Transferred to Lower Colorado Region**

Hirschi: I applied for, I think it was only two jobs. One was out in California, more construction in the Redlands area. Then the other one was in Lower Colorado. A good friend of mine, Wayne Freney [phonetic], said that he was thinking the same way I was. It was time to leave and get a promotion. We wasn't going to leave unless we got a promotion. We were elevens at the time. So he'd gone down there and gotten a job as a twelve, and then a job came up, and I didn't know anything about it at the time. If I'd known too much then, I probably wouldn't have applied for it, although it turned out to be a good job. It was in what they called the Colorado Riverfront Work and Levee System Program. I got a job in there as a GS-12 and moved.

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Storey: You worked on the Colorado River Front.

### **Colorado River Front Work and Levee System**

Hirschi: It was what they called the Colorado River Front Work and Levee System Program.<sup>6</sup> And that was a program that was authorized by Congress specifically to control and stabilize the lower Colorado River from Davis Dam, which was downstream of Hoover, all the way to the international boundary with Mexico.

Back in that period of time, there was a tremendous effort on conservation of water, a lot of talk about lower California is going to run out of water unless

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6. The Colorado River Front Work and Levee System is a drainage and construction program to control floods, improve navigation, and regulate the flows of the lower Colorado River from Davis Dam to the southern international boarder. For more information, see Lara Bickell, "Colorado River Front Work and Levee System," Denver: Bureau of Reclamation History Program, 1999, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

something's done. Here you had this lower Colorado, just a big, wide open, meandering river that meandered all the way to Mexico, and tremendous amount of water being lost through evaporation and phreatophyte consumption.

So this program was authorized by Congress, and the only other one that comes close to it is the Rio Grande, which I worked on when I was up here as Assistant Regional Director. But what we did was actually develop dikes that narrowed that river to stabilize it so it wouldn't meander all over, to confine it within a certain meandering limit, and to reduce the evaporation that transpired, and to get it away from these phreatophytes. Actually, the program authorized removal of phreatophytes. That's the program that I went down—I had no concept of this when I went down there, by the way. In fact, had I known probably a little bit about it, I may not have taken the job. But it turned out to be a good job and one that gave me a good perspective leading into the so-called environmental movement, because that's where it started was right down there.

### **Advent of the Environmental Movement**

That's really where the environmental movement, as I call it, as we know it today, you know, where the environmentalists started speaking out about some of these programs. That's where it started, because we were doing something they didn't like. We were taking away these wide marshlands. They even got the notion that we were planning to build a concrete ditch. They even advertised that, that we were going to build a concrete ditch, from Davis Dam to the international boundary, but that wasn't part of the plan. But they tried to make it out to be. We were using dredges. We had about three dredges going in the lower Colorado [River] dredging and then building dikes so that the river would stay in that dredged area. That's when the environmental movement started, when Stewart Udall was Secretary of the Interior,<sup>7</sup> and it got real hot, and he was getting thousands of letters from people along the river and elsewhere that said, "You've got to stop this program."

Storey: And there you were in the middle of it.

Hirschi: There I was in the middle of it, and that gave me a real exposure to the environmental aspect of it that I hadn't seen before. And probably to a larger measure hadn't existed before in the Bureau of Reclamation. That's not saying that we ignored the environment, I'm not saying that. But I'm saying that that is the point in time when some of us had to start placing more significance on the environment and the attitudes of others towards the use of water.

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7. Stewart L. Udall served as Secretary of the Interior under the Kennedy and Johnson administrations from 1961 to 1969.

The result of that effort on the part of environmentalists, we had, in the mill, plans to purchase a spanking-new sixteen-inch dredge to put in what was called the Parker Division. We had about seven divisions down there. The river was divided into about seven divisions. This one was the Parker Division, which really was the prettiest scenic part of the whole river, because it went through a canyon area. We were putting a dredge in there, right below Needles, and we were going to dredge through that canyon into Lake Havasu.

The environmentalists got furious, and they just beat on Stewart Udall something awful. He stopped it. We never dredged it. He stopped it. Of course, Nevada Fish and Game, principally Arizona Fish and Game, principally Arizona, but Nevada and California supported it. They were right in there with the other environmentalists. They blocked it. They actually blocked it, and we never dredged it.

### **Environmental Pressure Altered the River Front Program**

That changed, then, the pattern of our efforts on the Colorado from that point on. It really changed it. Arleigh West<sup>8</sup> was the Regional Director down there at the time, and he took that pretty hard, because he was one of the principals that envisioned this plan of stabilizing and narrowing the river to save, I don't remember, 150,000 [acre feet of water] or something. I don't remember the exact figures. Quite a sizeable amount of water per year that we would save, that could be used by California or anywhere, of course, on the river system.

Storey: When was that, that the environmental movement stopped the—

Hirschi: I would guess the year was 1967.

Storey: A couple of years after you were down there. Were you in charge of the program?

Hirschi: No, Paul Oliver was in charge. He worked as a dual. He worked dual-headed—the Regional Engineer and Chief River Control Engineer, under him he had Stan Freeland [phonetic], and I worked for Stan Freeland. It was principally Paul Oliver, Stan Freeland, Wes Hirschi, a threesome, that ran the program.

Storey: Tell me about these gentlemen. I hope they were gentlemen.

### **River Front Team and Issues**

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8. Arleigh West served as Regional Director of the Lower Colorado Region from 1959 to 1970.



Hirschi: Oh, yes. Arleigh West came aboard during the [Floyd] Dominy<sup>9</sup> era, when Dominy put in a lot of economists as regional directors. Up until that time, most of them were engineers, but he put in a lot of economists. Arleigh West was an economist, and he was a very strong Regional Director. He had his ideas, and I'm not saying they were wrong. He had his ideas of what he wanted done, and so he often gave us his ideas and concepts of what we ought to carry out, and it was up to Paul Oliver and Stan Freeland and me to do it. We were actually writing planning reports for these divisions.

There had been, of course, a lot of work done on the river before I got there. Now, they had dredged in the Needles area. They had to years before, because after the building of the dams on the Colorado, it changed the pattern of sediment movement in the river. And lo and behold, all of a sudden, they didn't have these flushing flows that would carry sediment through this narrow gorge that I talked about. So the sediment started depositing upstream of the gorge, and lo and behold, it started flooding the city of Needles. I think that's when the Front Work and Levy System was authorized to permit us to put a dredge in there and dredge it, which was done. They had done some work in other parts of the river.

I worked on planning reports for several of the divisions. One of them was the Parker Division that went down through the Indian property. And one of them was this Topock Gorge area. I worked on several of the planning reports. What we'd do is we'd actually put out a report an inch thick of our plan for that reach of the river, whether or not we were going to dredge, whether we were going to build what we called training dikes that would train the river. You have to give the river its freedom to meander like it wants to meander, but you can control it from meandering too much. So we designed all of that just how we were going to do it.

Then after the report was approved, which was really Arleigh West. Denver wasn't involved, except that we had a guy up there named Pemberton, who we used to deal with on sediment. He worked with us a lot. Before him was another guy. That was really the only involvement Denver had in it, giving us advice in sediment. So we finished the planning report, Arleigh West would read it, stamp it fine, so we'd go to work.

We had lots of dredging going on. The Cibola Division was done pretty much when I got there. That was a dredging program, and even cut off one great big oxbow,

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9. Floyd Dominy served as Commissioner of the Bureau of Reclamation under the Eisenhower, Kennedy, and Johnson administrations from 1959 to 1969. Mr. Dominy also participated in Reclamation's oral history program. See Floyd E. Dominy, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, April 6, 1994, and April 8, 1996, at Bellevue Farm in Boyce, Virginia, edited by Brit Allan Storey, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

one great big oxbow. Must have covered four or five miles. They just cut it right off with the dredge, made a new river.

### **Major Dredging Effort**

The Parker Division, which we did mostly by training dikes, building training dikes, that's a plan I put out—we put out—and built. Palo Verde Division, a lot of that were done. We had this Topock Gorge all set to go, was never done. In retrospect, the right decision was made—in retrospect, in my opinion.

Storey: It shouldn't have been dredged?

Hirschi: Not under the plan we had. Some day they may have to. If it starts backing water back into Needles, they may have to. Then we'd have to build the plan we had in mind. Anyway, those were the three main that I worked on.

See, we placed a lot of riprap. After we'd build these training dikes out of material, oftentimes from dredging, we'd build the training dikes out of that. Often times not. Then we'd riprap them so they'd stay. During the dredging programs also—that's right. Now that I think of it, correct, we didn't use the dredging material to build the training dikes. It was used to build levees, what they called levees. There was a lot of levee along the lower Colorado, but they were never riprapped until recent years. Some of it has been riprapped. But there they were, just these levees that were there out of dredge material.

When I got down there and Stan Freeland got down there, we started looking at those. We said, "This is a false sense of security. If we ever had this hundred-year storm come through here—flood—these dikes aren't going to hold it." So we started saying, "Hey, we've got to riprap some of these levees, especially down in the Yuma area." It wasn't done while I was there, but a lot of it was done about the time I left or after.

But anyhow, that is where the environmental thrust really started, as far as the Bureau of Reclamation is concerned, as far as I know. Then it grew from there, of course. We know what's happened since. That was about 1967.

Storey: When you went down there in '65, you said you went as a twelve. What had you started out at Reclamation? What kind of a grade?

### **Moving Up in Grades**

Hirschi: GS-5, 4,480, 4,480 dollars.

Storey: That was in—

Hirschi: That was after I graduated. I was an Engineering Aide, GS-3, and probably a four while I was going to college, but once I graduated I started GS-5, 4,480 dollars, which was not bad money in those days. You could get a little more by going to Los Angeles, probably a thousand more by going to Los Angeles County.

Storey: You mean working for one of those other groups you had talked about.

Hirschi: Yes. Right.

Storey: So somewhere along the line, you became a seven, I guess, and a nine and eleven. When did those happen, do you remember?

Hirschi: Well, I'm not positive, but it seemed like the so-called Sputnik Era, when they were starting to put the missiles up.

Storey: Yes, late fifties.

Hirschi: Yes. I think that brought about the seven. I'm not sure. I think there was a promotion there for certain level engineers. I could be wrong, but it seemed like two things happened. One, you got a promotion out of it and slapped to the high end of the grade during that era, immediate era. I might be wrong in what got my seven, but it all happened right there during that period.

Storey: And then the nine?

Hirschi: Yes, then the nine came, then the eleven, then the twelve.

Storey: Then you went to L-C [Lower Colorado Region].

Hirschi: Then I went to L-C as a twelve. I moved right along. I didn't stay in grade. Up to twelve I moved right along. Then I got into this river program and then after '67 when they stopped our work in the Topock Gorge, they decided to reorganize. They eliminated the Colorado River Front Work and Levee System Office, which was a separate office. It's like a project office. That was eliminated. Paul Oliver retired.

I and Stan Freeland were moved over to the 400 Division, Division of Lands, and whatever it was called, the 400 Division. We carried out the same role that we had. They just eliminated the fourteen, and Stan then more or less was in charge of the program as a thirteen, and I was a twelve. I worked with him until I think it was about '68. It was around '68 or '69. There was two things that were happening. One, I was

staying in grade twelve a little longer than I wanted to, and, secondly, the Front Work and Levee System was well advanced, and I knew about as much as I needed to know about that program. So I was looking for a move. So what happened was that they had the Navaho Generating Station.<sup>10</sup> You've heard of that?

Storey: The coal-powered—

### **Environmental Issues with the Navajo Generating Station**

Hirschi: Coal-powered Navajo Generating Station.

Storey: Well, I want to say hydro, but the electric generation plant.

Hirschi: It's about that point in time, see, a year after the crusade hit in '67, the environmental thing was starting to gain some momentum, at least in the Lower Colorado Region, and two of our projects were threatened. We had put out on the Central Arizona Project, I think it was a sixteen-page environmental statement. Okay. The Navajo Generating Station was under construction, but nonetheless fell under the NEPA [National Environmental Protection Act] likewise.

Storey: NEPA came in in '69.

Hirschi: Was it '69?

Storey: Yes.

Hirschi: Okay then. Well, that could have been it about when I moved. Anyway, the environmentalists were threatening an injunction to stop the construction of the Navajo Generating Station, and the environmental statement wasn't going to fly that they had. Like I say, sixteen pages of the Central Arizona Project. So they decided to tap me, because I had written several reports on this Front Work and Levee System, done a pretty good job in writing. And the crash program to handle that environmental statement, I think it was in '68 or '69 when they set up the environmental officers in each region. That was the same time. I had late '68, but it could have been early '69.

Phil Sharp, who was hired down there, he just came aboard, and they needed help desperately on Navajo or it was going to be stopped. So they transferred me to—I think initially it was a detail, but it became permanent—to Phil Sharp, Environmental Office, to handle both Navajo Generating Station and then Central Arizona Project environmental statements. Those two I handled. That was on a crash program.

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10. Located on the Navajo Indian Reservation near Page, Arizona, the Navajo Generating Station is a coal-fired powerplant that supplies electricity for the Central Arizona Project pumping units.

Storey: Which one?

Hirschi: Navajo Generating Station.

Storey: Where did that come from? Why were we building a coal-powered electric generating station?

Hirschi: Because that furnished the power for the Central Arizona Project, so we were a partner. Our share was something like 20, 25 percent, along with Nevada Power, Southern Cal Edison, Arizona Power. Seemed like there was one other. I think there was four. Salt River Project, that's it. Nevada Power, Southern Cal Ed, Arizona Power and Light, and Salt River Project, Bureau of Reclamation.

Storey: Where is it located?

Hirschi: Page, Arizona. The environmentalists were threatening to shut it down, and they probably could have. So Pfister who was an attorney, but manager of Salt River at the time, said, "We're going to get shut down if we don't do something." So they moved me over under Phil Sharp. What had happened was that the Upper Colorado River [Region] had taken care of the coal mine. The darn thing was divided. The Lower Colorado had put out an environmental statement on the railroad. We had the Lower Colorado. The Upper Colorado had put out an environmental statement on the coal mine and the generating station. We had the railroad and something else, it seemed like. Anyway, so it was all split up.

So I was given the responsibility of taking over all of it and putting it out under one what we now call as programmatic environmental statements. I suspect that was the first in the Bureau of Reclamation. You know what I mean "programmatic"?

Storey: For the whole program, I presume.

Hirschi: That's where you put out one environmental statement that generally covers the plan, with the intent of putting out site-specific environmental statements later. I think we pioneered that in the Lower Colorado, I'm pretty sure we did, on Navajo Generating Station, and we later used it on Central Arizona Project.

Now, in Navajo, I was able to cover in—I could be wrong. I'll back up. On Navajo I accomplished it in one statement. It was Central Arizona Project where we went to the programmatic, which I think was the first in the Bureau of Reclamation. We didn't even call it "programmatic" at the time, I think we called it "overall environmental statement," with site-specifics planned later.

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But anyway, back to Navajo, I got everything from Upper Colorado and everything from Lower Colorado, and by and large, I took what was available and used it as the base, and then between I and Jack Pfister, who was a marvelous individual to work for in Salt River, and he had a tremendous mind—

Storey: I met Jack before he retired, I think.

Hirschi: Okay. Tremendous mind. He and I worked just so close, and he was great at dictation. He could sit down and he'd say, "Now, we've got to have something in here to cover us legally. Right here," he'd say. "We've got to have a paragraph in here." He'd say, "Okay, let's roll it," and we'd have someone that could take it. He'd roll out this paragraph legal that we could put in there, you see. He and I worked diligently on that thing. Of course, I had the overall responsibility of getting it all taken care of and typed. What a rush job, my goodness. I think we blew that thing out in sixty days, and got it done and got the powerplant finished.

Then I was immediately put on Central Arizona Project that was authorized in 1968, to write the overall environmental statement on that one, which turned out to be about two and a half inches thick.

Storey: Let's just concentrate. We're running out of time.

Hirschi: I know.

Storey: Let's just concentrate on the Navajo Powerplant. Were there any specific issues that you had to address that were particular problems for either Reclamation or one of our partners there?

#### **Issues with Particulate Matter**

Hirschi: Yes, the issue was on a particulate matter.

Storey: Particulates.

Hirschi: Yes, coming out of those stacks, and what effect that was going to have on the surrounding areas, including the Grand Canyon. That was the main issue. Now, of course, the environmentalists also had concerns about the coal field, and there was an open coal field, and whether or not we were going to do reclamation work.

Storey: Land reclamation.

Hirschi: Land reclamation afterwards. That was the major two issues. Of course, we had—I'm

just trying to reconstruct everything. I know as a result of that environmental statement and the material that was generated as a part of it, and further consideration of all the data, they added—now bear in mind, this is going way back, so I could be using the wrong terminology, but I don't think so. They added scrubbers, what they called scrubbers, to those stacks. I think it was scrubbers they added. I know they added something, and I'm going to call them scrubbers for discussion purposes, that further reduced the amount of particulates that were coming out of those stacks. I think that added at least a 25 percent increase to the cost of that powerplant. I don't remember what the original cost of that powerplant itself was, but it seemed like it added several hundred million, as I recall.

Storey: I'm interested in the process you used for doing the environmental statement, because, of course, an environmental statement makes commitments. How did you know what the commitments were going to be? Were you talking to people at Reclamation and talking to all the partners? How did all that work?

Hirschi: Okay.

END SIDE 2, TAPE 2. JUNE 28, 1995.

BEGIN SIDE 1, TAPE 3. JUNE 28, 1995.

Storey: This is tape three of an interview by Brit Storey with Weston Hirschi on June 28, 1995.

### **Environmental Commitments**

Hirschi: Okay. Since the Upper Colorado had put out statements on generating station, and maybe that was it, I'm not certain now. We had the railroad in the Lower Colorado. See, you had the railroad that brought the coal from the coal mine through the generating station. Maybe that's right. Maybe the Upper Colorado had the generating station itself, because it was linked into the supply of water. We in the Lower Colorado had an environmental statement on the coal mine and the railroad. I think that was it. So initially I got with the people up here, and the guy mainly was Biwater [phonetic], who was Assistant Regional Director. I got together with him and with, I think, then also Jack Pfister, the Salt River Project, and we talked about ways and means to consolidate all of these into one statement, because the environmentalists were saying, "You don't have an environmental statement that addresses the complex. You've got three, four of them here. You should have one."

Pfister was concerned that they could make some mileage out of that if they ever tried to get an injunction. So we got together and talked about it, but we had to blend it into one, or time frame of how quickly we had to do it. Of course, I had the

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responsibility then to take these existing statements—and bear in mind in those days they were pretty skimpy—and put them in the format of the environmental statement, and elaborate on them to the extent I could by using all of the studies, etc., that had been generated.

The other participants that I mentioned didn't take an active role in it. They just more or less left it up to Salt River Project, who was the party assigned for construction of the complex, Salt River Project. They were designated by all of the participants to be the project manager, so to speak. So it was left up then to Salt River Project, Upper Colorado, Lower Colorado [regions] to get this job done, and then I was the one that had the assignment to do it. So what I did was initially got all the materials and then started putting together chapters, and then getting them out for review by Upper Colorado and Salt River [Project]. Then as needs be, we'd get together on meetings.

Of course, when it got into the one chapter which deals with your commitments, this is what you're going to do to minimize the environmental impacts, that's the one that Jack FeesterPfister and I worked together on very closely. Because he had the legal mind, and then I was responsible to put it down in the report. So he and I worked together quite closely on that. Then in the end, it was reviewed by Salt River and Upper Colorado and Lower Colorado before we went to final print.

Storey: Then it was circulated.

Hirschi: Then it was taken back to Washington. I hand-carried it back, and we shoved her through the Department in a matter of—Al Jonez<sup>11</sup> was back there then, if you ever run across him.

Storey: I know Al.

### **Environmental Statement Approved by the Secretary**

Hirschi: We shoved her through and got approval. I'm trying to think now, I'm positive, to my knowledge, it wasn't put out for any public review. It was finalized, approved by the Secretary, and then made available to anybody that wanted copies.

Storey: So wasn't ever put out for comment, really.

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11. Al Jonez participated in Reclamation's oral history program. See Al. R. Jonez, *Oral History Interview*. Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in Boulder City, Nevada, edited by Brit Allan Storey., 2010, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).



Hirschi: No.

Storey: Were we challenged?

Hirschi: Was not.

Storey: It was not challenged. Okay. Good.

Hirschi: It was in the early process. Today you would have been challenged, because you can't do it that way. But in the early process of the environmental statements, things like that occurred. But bear in mind, this thing was well along in construction. It well in construction, everything. The main thing was to make sure that the environmentalists couldn't get an injunction to stop construction, because that would have been very costly. So we did what we thought we had to do, and should do, from a legal standpoint, from an environmental standpoint, to satisfy the intent of the law, and apparently we satisfied it, because we did not get challenged on it.

Storey: That's very interesting. I'd like to continue, however, I've already kept you overtime by fifteen minutes, and I apologize for that. But I'd like to ask you whether or not researchers from both inside and outside Reclamation can use the material contained in these tapes and the resulting transcripts for research purposes.

Hirschi: Well, I suppose so. Bear it in mind that I'm going from memory, and you may not always have the accurate dates.

Storey: Well, we keep all that in mind. That's why you double-check everything.

Hirschi: Oh, sure.

Storey: Thank you very much.

END SIDE 1, TAPE 1. JUNE 28, 1995.

BEGIN SIDE 1, TAPE 1. AUGUST 12, 1996.

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation interviewing Weston Hirschi on August 12, 1996, at about two o'clock in the afternoon. This is tape one.

We were talking about your work at the C-A-P, and you had just mentioned that we did a programmatic environmental statement for the entire C-A-P, with the concept that we would then do individual environmental statements for each major unit that came up.

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Hirschi: Correct.

### **Programmatic Environmental Statement**

Storey: Can you tell me more about why we thought we would do a programmatic environmental statement?

Hirschi: Yes, I think that this was the first that was accomplished in the Bureau of Reclamation. And Phil Sharp and I were looking at a way to accommodate NEPA compliance that was in place at the time, but recognizing that we had such a massive project, and that there would by necessity be many, many changes from the time we initiated the construction until what time we completed that we had to come up with a way that we could proceed.

I probably mentioned last time that there was an environmental statement out on Central Arizona Project. I think it was thirty pages. The environmentalists were saying that was inadequate, and, of course, at about the same time as when each of the regions hired environmentalists, and we hired Phil Sharp, and we decided, yes, we were willing to put out a better product.

So we put out this programmatic that covered at that time all of the integral parts of the Central Arizona Project, running from Mohave Lake on the Colorado clear down to near Tucson. I would guess that programmatic was probably a couple inches thick. Yes, I would say it was. We put in there everything that we knew at the time, and we had the basics. We knew how much water was going to be carried, and generally where it was going to be delivered, and the general location of pumping plants, so the general scheme was there, but we hadn't really set forth all the specific impacts, positive or negative. We generalized them in that programmatic. Anyway, that, I think was the very first, and that was approved as an appropriate procedure, and was not challenged by the environmentalists.

So we put that out first, and then we proceeded to put out the separate ones, separate detailed environmental statements, and I suppose that the first one—I don't know which one we put out first. We actually started construction on a dike that was for flood control that would protect our aqueduct in the northeast part of Phoenix. That's where we started construction. I'm not sure that was our first detailed. I doubt it. And maybe you don't need to know that, but I suspect—now, I left, of course, in 1982 before all of these detailed ones were done, and they extended the aqueduct further south than we envisioned when I was there. They ran it all the way, for all intents and purposes, into Tucson. But I think we had put out five-, six of them probably, I'm guessing now, by the time I left. The construction, by the time I left, was heading south of Phoenix towards Tucson, and moved that far.

Storey: I think they had their first water delivery about '82 or '83, didn't they?

Hirschi: Yes, into the Phoenix area.

Storey: Yes, Lake Pleasant and then Phoenix.

Hirschi: See, for an example, our programmatic probably covered maybe five pumping plants between Lake Mohave and Phoenix, whereas, as I recall, one or two of those were eliminated and one or two were relocated. So I think that in the end we utilized about one or two less pumping plants. So, see, that's the sort of change that would have been made between the programmatic and the detailed, and the effects on the environment wouldn't have been all that much different. But that's about the only way to proceed on a massive project like that and be fair to both sides—the environmental side and the other side, so that you could get site-specific and deal with the site-specific environmental considerations. Now, we did turn around and done the same—no, we didn't. I was going to say we done the same thing on the generating plant, but, no, it wasn't the same.

Storey: Did Reclamation have to do any special consultations, say, with the environmentalists to convince them that this was an appropriate way to go, or did they just buy off on it on the basis of our document

### **Environmentalists Did Not Contest CAP EIS**

Hirschi: I think that we just more or less decided that was the approach we had to take, and I can't recall specific instructions with the environmentalists. Phil Sharp may have had it since he was the environmentalist, and I worked for him, he may have talked to some of them and indicated that, you know, if you're going to look at this practically, such a huge project, you can't possibly expect us to nail down every single impact, positive or negative, at this point in time, when the construction was going to take ten-, fifteen years. So just from a practical and logical standpoint, this is the way we ought to proceed.

I know that there were some environmentalists who said, "You shouldn't do anything until you know precisely every detailed impact." Well, that wasn't practical, because what those types of environmentalists were saying is, for all intents and purposes, don't construct, because you don't know every little impact, so just don't start. In other words, that's a no-growth position. So, yes, there was talk from some that you ought to know what you're going to do before you start, but we more or less just indicated we can't do that, and we're not going to accept the no-start position, and so we just went ahead and done it. As far as I can recall, we never got major opposition from the environmental community on that.

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Of course, C-A-P didn't have much environmental opposition. For all intents and purposes it didn't exist. There was one engineer, I don't remember his name, who in the early state of construction, maybe midpoint, tried to bring some opposition to bear, but he never could get it off the ground at all. He professed—I guess he was an engineer, said he was, so he was professing that he knew a lot about the engineering aspect and it just was a "dog" projects, not be built. But other than him there really wasn't opposition. I suspect that the environmental community at large felt that the really didn't have enough basis to try and stop it.

Storey: It would have been, I think, Reach Fourteen there north of Phoenix was it? Reach Eleven, maybe?

Hirschi: I don't know now. It's been so long where what reaches we might have been in there north of Phoenix, north and east of Phoenix.

Storey: Yes, up in the Scottsdale area.

Hirschi: It could have been Reach Ten, Eleven, somewhere in there. We broke it down into a lot of reaches. I don't remember how many reaches we had now.

Storey: Yes, I don't remember either. Why were we building there first—so early?

Hirschi: The northeast?

Storey: Yes.

### **Needed to Get Construction Started**

Hirschi: It was to get the construction start. They in Phoenix and Arizona had wanted this project for so long, and they had to fight legally to get the water rights straightened out, and they wanted a start very badly. Of course, they thought they were going to be able to start on that thirty page environmental statement, but then when some of us got to saying, "Hey, this isn't really going to cut it. If the environmentalists take you to court on it, they're going to win hands down," and we just as well accept that and do it right. "Well, okay."

So we finally convinced guys like Cliff Pugh and others that we ought to go this, but they were still anxious to get a start so that they could start getting money coming. So the reaches there northeast of Phoenix in the—it had a name, the valley had a name there, I can't remember what it was called. But there was an awful lot of big homes being built out in that area.

Storey: Paradise Valley?

Hirschi: Paradise Valley. So they were stopped. "You know, we can do something that will help that valley. We can build as part of our canal a big flood protection dike. Then what we'll do is we'll trap the water that comes off in these rainstorms behind these dikes, and then release it in—and I think it's released—I'm not positive on this, but I think it's released. I was going to say into the canal, but, no, I'm not sure that's right. But it's a controlled release out of those—in other words, the dikes have outlets through them, but with a restricted capacity. So if you have a big runoff that traps forty acre feet, it's going to take whatever time they developed in there, days, weeks, whatever for that to gradually flow through the outlet works. I'm sure it probably bypasses a canal, because you couldn't design a canal to accommodate that kind of fluctuation, plus it would be a lot of dirty water. I'm sure it just bypassed the canal. But instead of a big flood going through there, that whole area, absent the dike and the canal, it was not controlled, and the water coming out of those controlled dikes would just run on down the regular drain passageways without causing any destruction.

So that was sold to the city fathers, so to speak, and approved, and we went for funding on it and got it. That was our construction start. Once we got the start, we kept rolling. We kept rolling then. So that was done first, then we jumped back to pretty much the beginning of the aqueduct. I think we got into Reach, maybe, Two or Three first, after the dike. I think we jumped back into about—Reach One was Buckskin Mountain Tunnel, probably. That was probably Reach One from the pumping plant through Buckskin Mountain Tunnel for a ways, then Reach Two and Reach Three. I think we started on about Reach Two and Three because we could get those rolling quickly. We had to spend a lot more time designing the pumping plant and the Buckskin Mountain Tunnel. See, it came later.

Storey: I think one of the things we did early was Navajo Powerplant.

Hirschi: Yes.

Storey: How was that received?

Hirschi: The Navajo Powerplant?

Storey: Yes, by the environmentalists.

### **Navajo Generating Station**

Hirschi: Well, what happened on that, see, the plan for Central Arizona Project was to provide power from the Marble Canyon or Bridge Canyon dams. Of course, the

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environmentalists felt that was worth fighting over. So they fought and fought and fought, and there was, unfortunately, an awful lot of information put out by the environmentalists that was not true, and they were talking about flooding of the Grand Canyon and using all these glamour words to scare people, like "Gosh, the Bureau of Reclamation's going to destroy the beauty of the Grand Canyon." So there were a lot of public views shaped by this misinformation, and the Reclamation just couldn't ever seem to straighten that out.

So, finally, a decision was made, and I don't know who was commissioner at the time, but, of course, Cliff Pugh would have been—I imagine Cliff was still there at that time.

Storey: This was Floyd Dominy.

Hirschi: Floyd Dominy was Commissioner.

Hirschi" Probably, and Pugh was probably there and Arleigh West. All three of them were probably still in place at the time.

The agreement that was cut with the environmentalists was that, "Okay, we'll forego building those dams for now, but we have to build this Navajo Generating Station." Initially, the environmentalists agreed to that. Then later after we got construction or plans, well in advance of construction, they tried to stop Navajo Generating Station, too. But bygones be bygones, now we're going to deal with your big massive generating station, and we don't like the stuff that's going to come out of the stacks. We don't think you ought to build it, see. So they made a run at trying to stop that.

That's when we had two regions involved on that. There was the Lower Colorado and the Upper Colorado. The Upper Colorado had put out an environmental statement on—there were separate environmental statements, one on the plant itself, which was done by the Upper Colorado. Then there was a separate environmental statement on the railroad conveyance system, and I think there was a separate one on the coal mining operation. There were four or five separates. The environmentalists wanted us to consolidate them and make one environmental statement. That was the subject of discussion for quite a while.

Of course, we had Salt River Project involved in that, and Bureau of Reclamation, and I'm going from memory, Southern Cal Edison and Arizona, whatever it called itself at the time. I think there were five—four plus Reclamation—five utilities in that as shared partners. And Nevada Power was in it. Yes. Anyway, meetings amongst the people that were involved in it. Reclamation, I think, had 25 percent

We decided to consolidate them, but in a hurry. Well, it was decided that Lower Colorado would take the lead, and I was assigned responsibility to put all of that together in one. And that was a crash program. I did it mostly myself, but with an awful lot of input from Jack Pfister, who was the manager of Salt River Project at the time, an attorney, and he helped an enormous amount on it. Of course, Phil Sharp helped a lot, too. But I put the product together, and then we'd get together and review. The Upper Colorado, Lower Colorado, and Salt River [Project], mainly they were the three involved. The Salt River Project, Upper Colorado, Lower Colorado [regions] did most of the activity, and the other two participants, or three, whatever there were, just, "Okay, you guys do it."

So we shoved that out, probably in about a three month period, and I hand-carried it back to Washington and walked it through Washington to get it approved. Construction was underway, as I recall. Construction was actually underway. I think it was decided maybe we'd better do that, because we certainly don't want them to get an injunction and stop construction. That would be costly. That's how I remember it. I don't know what part, but I think the generating station itself was underway. I'm not so sure but what construction wasn't underway on most of it at that time.

Storey: You were in Boulder City?

Hirschi: I was in Boulder City.

Storey: One of the things that I'm particularly interested in is how relationships within Reclamation worked.

Hirschi: Then?

Storey: For instance, you were in the region doing environmental statements, but the project manager was in Phoenix running the project.

### **Relationships within Reclamation**

Hirschi: Right.

Storey: Did that cause any problems or tensions or issues to arise?

Hirschi: Yes.

Storey: What kinds of things were going on?

Hirschi: We're back on the C-A-P [Central Arizona Project], right?

Storey: Yes.

Hirschi: We're back to C-A-P. Well, several things came to light. Not everyone favored hiring these environmentalists. Each region hired environmentalists, and Denver hired one. That was a decision that was made by whoever. The Commissioner, I'm sure, was involved, but not everyone favored that. Each environmental officer carved out his own niche and how he was going to operate in each region. In Lower Colorado, we kind of developed the—we, Phil Sharp and I and the regional directors that we had . . .

Storey: That would have been Ed Lundberg?

Hirschi: That was probably Ed Lundberg.<sup>12</sup>

Storey: Well, now, wait. We just said Arleigh West, but I think Lundberg chose Sharp.

Hirschi: Yes. I'm going from memory. I would say it was Lundberg. Yes, as I remember, Arleigh West retired and Lundberg came in, and not too long after he came in is when this decision was made to hire these environmentalists. I'm pretty sure. So Lundberg was there.

So what actually happened is that we more or less drove the environmental process from Boulder City. In other words, "You guys at C-A-P, if you don't like it, you're probably going to have to lump it, because we see this as a necessity." Initially, that the way Sharp and I operated.

Now later on, and I of course left him and moved over back into construction. Then later on, Phil and I started talking about, "We need to reverse this process. Instead of the region driving it, really we ought to reverse it and have the projects responsible to drive it and us over viewers," and that's how he turned it later, which was right.

### **Proactive on Environmental Issues**

I think what happened beginning was right. We had to drive it. There was mixed emotions out there about environmentalists. "We never have paid any attention to them, why are we doing it now?" But some of us could see the handwriting on the wall. You either do it, or you're not going to build. So we drove it initially, but then it was over. Put the responsibilities on the project, and that worked out fine.

With C-A-P, and I don't know if I mentioned this last time or not, but Cliff Pugh

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12. Edward A. Lundberg was Lower Colorado Regional Director from 1970 to 1975.



used to laugh about the thing was authorized on the back of a piece of toilet paper. Did I mention that, or did he?

Storey: No.

Hirschi: Yes, he use to kind of laugh about—when we went down there, Phil Sharp and I, talking to them about what is you plan in all this, okay, we've got to prepare this environmental statement. Where's your plan? That's when Pugh would kind of laugh and say, "Well, we threw that piece of toilet paper away that was used to authorize it." Now that was stretching it a little bit, but not a heck of a lot, because they really didn't have down on paper in writing much about the plan. They knew they were going to take water from [Lake] Mohave on down towards Tucson. That's about what they knew. But there was one guy down there named Dave Creighton, as I recall, who had it all right up here.

Storey: It was all planned in his head.

Hirschi: It was all in his head. I mean, that guy had a memory that wouldn't go away. Boy, we tapped him. So what we did is we used him then to develop the plan. So he would write down on paper what the plan was. He'd been there for a long time, and he was an engineer. So he's the one that really wrote for us the plan for the programmatic and for the detailed ones until he retired. He was the principal source of information. I mean, I'd have to say, without that guy, we would have had tremendous difficulty in reconstructing a lot of that. Now, we had guys like [Larry] Morton,<sup>13</sup> and who was the other one? I can't think of the other one that knew a lot, but not as much as Dave Creighton, because he was older and he had more knowledge of it up in his head. That's kind of the way it went.

So the way it worked on the programmatic and the detailed ones that I was on, Dave Creighton, and I'm sure he used help of others down there, but he kind of had the lead responsibility to develop for the programmatic and then later for the specifics what the plan was, as far as conveyance of water. Then he'd ship that up to us, and then I suppose they gave us impacts, too, on what the perceived as the pluses and minuses on the environmental side. Then he shipped it up to us, and then I was the principal one in Sharp's office to pull them all together in an environmental impact statement. I did the programmatic and I think I done one or two of the detailed before I moved over to the Division of Construction.

Then at that time those were hot jobs. It was expedient to get them done,

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13. Larry Morton participated in Reclamation's oral history program. See Larry D. Morton, *Oral History Interview*, 2 volumes, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews, conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, during 1996 in the Phoenix Area Office, edited by Brit Allan Storey, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

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because with those, then, Don, he could go for money and start moving the construction along. We did. We set a ten-year construction period, ten years to have C-A-P built and, you know, for all intents and purposes, achieved that on the portion that was envisioned at that time. They did take it further south, which added another couple or three years to it. But, boy, that ten-year construction program, for all intents and purposes, we achieved that. I left in '82, but the schedule was rolling.

Storey: Was Wayne Deason<sup>14</sup> there while you were working there?

Hirschi: Yes.

Storey: What was he doing in the office?

### **Environmental Office**

Hirschi: Well, Wayne Deason became one of the principals in the Environmental Office to Bill Sharp.

Storey: Was that after you left?

Hirschi: Until he left and then he later left and went to Washington, I think it was.

Storey: Yes.

Hirschi: Yes. And then to Denver.

Storey: Did Wayne come after you, or before, or at the same time?

Hirschi: Phil Sharp came in by himself, initially. Then he could see, of course, with C-A-P and Navajo, tremendous workloads, and he needed some help. He brought me over, because I had worked up reports in the office I was in. He brought me over. Then I was trying to think who came aboard next. I don't know. We had Deason in there, we had—gosh, I can see him, but I can't think of his name, but left and went with the water district later. But Deason came in there fairly early, as I recall. If he was there, he didn't work on what I've told you about, those initial reports on C-A-P and Navajo.

Storey: Did you ever hear how Phil Sharp was hired as the Regional Environmental Officer.

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14. Wayne Deason participated in Reclamation's oral history program. See Wayne O. Deason, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interview, conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, October 22, 1993, and February 8, 1994, in Building 67 on the Denver Federal Center, edited by Brit Allan Storey, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

Hirschi: As far as I know, Lundberg just picked him. I don't know of a pressures that came from anywhere else. I think Lundberg interviewed him.

Storey: Do you know where he was from, or anything?

Hirschi: Phil?

Storey: Yes.

Hirschi: He worked for the Fish and Wildlife Service for a number of years. At the time he was in Minnesota area or somewhere up by the Great Lakes, I think. It almost seems like Lundberg went back there and interviewed him. I'm not sure, but it seemed like he did. It seemed like he did.

Storey: But you came after Phil Sharp, is that right?

Hirschi: No. I was there.

Storey: You were there before Phil came.

Hirschi: Well, I was in Boulder City working in the Colorado River Front And Levee System programs. Then they hired Phil, jeez, that seemed like it was about 1969 or '70 when Lundberg hired him.

Storey: Yes, '69 was NEPA, National Environmental Policy Act.

Hirschi: Yes. Then they brought him in '69 or '70. He was a lone individual there to start the environmental program. So he didn't have any help, and so I was moved over there. Then Deason came, but I don't know when. But I think Deason would have come aboard in a couple- three years. As I recall, when I was working with Sharp, there was he and me, and we had that secretary that was very good. Gosh, I can't think of her name, but she was excellent.

END OF SIDE 1, TAPE 1. AUGUST 12, 1996.

BEGIN SIDE 2, TAPE 1. AUGUST 12, 1996.

Hirschi: . . . nor was this other guy I'm trying to talk about, trying to think of his name, was there, who later left. He worked there for a number of years and then later went with one of the districts. Coachella, I think. But they came in, Deason and this other one I can't think of his—Mera [phonetic], I think. And they were with Sharp there. Then Deason transferred to Washington with Joe Nez [phonetic].

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Storey: What did you think about being moved over into this environmental office? You were a construction engineer weren't you?

### **Easy Transition into the Environmental Program**

Hirschi: Well, at the time I was up here in Weber Basin Project. I was then ten years, and I worked in a variety of things, right-of-way, design, but I was in construction when I moved to Lower Colorado. But the position they had me in was writing planning reports for reaches of the Lower Colorado River. So I had written two-, three reports on that, so I had a pretty good feel on how to write reports, and I was okay with going over there as long as it was clearly understood that that wasn't permanent. I didn't want to be there permanent, but to go over and give them help to get started on C-A-P, you know, I didn't resist that at all. It was just more experience. I'd always enjoyed a variety of things, and like I say, I worked up in Ogden in a variety of places. Right-of-way was a very interesting place to work, and design, and construction. So it was just a new challenge. So that didn't bother me.

Storey: How long did you do that?

Hirschi: I think it was—let's see. He must have moved me over in '70. I imagine a couple of years. Even moved from a [GS-]12 to a [GS-]13 during that time. He moved me from a [GS-]13 to a [GS-]14 during that two year period.

Storey: Where did you go next?

Hirschi: Then I left the Environmental Office and I went over to Division of Design and Construction, head of the Construction Branch. When I applied for a job, but it was lateral in the (unclear) as [GS-]13. But by then the crisis was over. We had C-A-P rolling, we had Navajo Generating rolling, and the crisis was over. But he brought in some other people to help.

Storey: So for whom did you work as chief of the Construction Branch?

### **Working in the Construction Branch**

Hirschi: Austin. Robert Austin.<sup>15</sup>

Storey; Was he the Division Chief?

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15. Robert Austin participated in Reclamation's oral history program. See Robert Austin., *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interview conducted by Wm. Joe Simonds, historian, Bureau of Reclamation, September 29, 1999, at the interviewee's home in Boulder City, Nevada., edited by Wm. Joe Simonds, 2003, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

Hirschi: He was head of the division—Robert Austin. He had probably about thirty-six years then when I moved over. Then when he retired, about three years later, I was promoted to his job.

Storey: To Division Chief?

Hirschi: Yes.

Storey: About '75 or so?

Hirschi: Yes. Right. See, I was in Construction Branch when we were in it. So after I got C-A-P out of their hair, and Navajo, then I moved over there into construction. So I participated in the construction of both of them, the generating plant and C-A-P.

Storey: Tell me about how to participated, because, of course, the project office is the main construction office, as I understand it. So what's the region's responsibility in terms of that construction program?

Hirschi: Well, that varied from region to region and from personnel to personnel. But the Denver Office was responsible for the designs and oversee the construction for C-A-P. I mean, that was pretty much understood. That was the major role of them. Our role in the regional office was mainly one of participating in the construction program. So we sat . . . and Jim Brown was the head of design, and he and I worked together very well. Andy Dolyniuk and I worked together very well. Initially we talked in terms of who should do what. The way it kind of turned out was, minor things were designed in Salt Lake—minor jobs.

Storey: In Boulder, you mean?

Hirschi: In Boulder City. Initially, Phoenix wanted it, but I tried to talk to [Andy] Dolyniuk<sup>16</sup> and told him, "You know, you're going to have plenty work building the big stuff," and there was merit in having the little stuff done in a local office just the big stuff's done in a focal office. So Don didn't really fight that much. In other places they may have fought it, but he and I developed a good working relationship.

We done little minor designing in Boulder City for the whole region, but all the major stuff was designed in Denver. And they had the major role in supervising, oversight, and construction. But we got a pretty good system going there. What I

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16. Andrew (Andy) K. Dolyniuk participated in Reclamation's oral history program. See Andrew K. Dolyniuk, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews, conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in Phoenix, Arizona, edited by Brit Allan Storey, 2011, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

would do, and Dolyniuk would let me do it, is periodically or twice a year I would put together an itinerary working with him to get the regional office people and the Denver Office people and one or two of us out of Boulder City to make a visit of the construction. That helped us all from the standpoint of knowing what was going on, because we were dealing with budgets heavily in the regional office, and it gave us all a good familiarity with what was going on, and talking about problems on site. So we developed a very good working relationship in that regard. At least that's the way I saw it, and I think you'd hear the same out of Jim Brown and Dolyniuk in that regard.

Storey: What about supervision? How did the region fit into that [supervision] of the construction?

### **Region's Role in CAP Construction**

Hirschi: Supervision of construction? The role that I played, not much, because they had enormous amount of skill in Denver at that time. Jim Brown was a great leader of design then, and a good head on him. The only problem we had with Denver was, and we got that resolved, but that came later when Lundberg had retired. We had Manny Lopez<sup>17</sup> as Regional Director. But the working relationship was good.

Back to your very question, we didn't take a major role in Boulder City in saying, "This is how you're going to build, and this is how you're going to do it." No, that was worked out. Phoenix would collect the design data and send it into Denver, and Denver would design it. But I would always participate in the spec reviews, or at least me or my designer in Boulder City, we'd always go up and participate in the spec reviews all the time. So between me and Burt Simpson, who was my designer, we had a pretty good hand on the pulse, but we didn't try to drive it, because there was a lot more expertise out there than us in Phoenix and Denver.

One of the problems we had with Denver was we were bound and determined to get this built in ten years. We had togetherness. As far as John Q. Public got there, the Bureau of Reclamation, the district, the Central Arizona Water Conservancy District, who was headed by an ex-Bureau guy, Tom Clark, all the congressional people, were all united, as far as John Q. Public knew, to get the funding to build that in ten years. And that's how we got it done.

So Denver started slipping our schedules. We had to hit our flag dates for

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17. Manuel (Manny) Lopez was Lower Colorado Regional Director from 1975 to 1979 and participated in Reclamation's oral history program. See Manuel (Manny) Lopez, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews, conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in 1995 and 1996, in Jefferson County, Colorado, edited by Brit Allan Storey, 2008, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

design, spec completion, for water contracts, we had to hit them. We weren't going to make the ten years. Well, they started missing them, and so Lopez, who was a great dynamic individual, who was Regional Director, he says, "You go to Denver, and you tell them if they're not going to meet our schedule, we're going to contract it out." And I did. That cost me later on. The cost me a little bit later on. But I went to Denver like a good soldier, and I told them we had to meet these schedules, because we were bound and determined and we were committed very much with the Arizona delegation and the district that we were going to complete this in ten years, and "You've got to meet our schedules, and if not, we're going to contract out."

I remember as clear as day, I was in Donald Duck's<sup>18</sup> office one day, and he was director then, or acting, he might have been acting still. He just about was ready to pick me up and throw me out the window, and he says, "I'm sick and tired of that Lopez of your dictating what we're doing to do. I wish he was here. We'd have this out right now." Something like that. I said, "Well, I can't help it. I can't help it." I said, "This is the agreement we've made in Arizona, and we've just got to do it. Why can't you meet it." "Well, we've got more work than just C-A-P." (Laughter)

Well, anyway, we kept pounding on them and pounding on them, and, well, anything over two months we'd make a big fuss about. If they missed a spec issuance by two months, we'd make a big fuss. Well, to make a long story short—and I had this confirmed through the back door later on from a very reliable source, that they decided that rather than fight us on it, they would make Central Arizona program the base workload in Denver, and everything else was subject to slippage or contracting out. That was a very good decision, because at that time Central Arizona Project was the big program in Reclamation. So whoever made that decision, and I happen to think it was probably Jim Brown and maybe Doc or whoever, that was a good decision. From that time on, they pretty well hit our flag dates.

Storey: How long do you suppose that period of adjustment took?

Hirschi: Probably a good six months to maybe nine months. Where we got more threatening in Boulder City. Like I say, that later on in my career probably didn't do me any good, because when it came time for promotions, then some people in Denver looked upon me as anti-Denver, and I was not anti-Denver. I was just carrying out what I felt was a reasonable approach. We had to get this thing built. We weren't going to take twenty

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18. Donald Duck was a long-time Bureau of Reclamation construction engineer who worked on construction of Flaming Gorge Dam, Yellowtail Dam and Grand Coulee Third Powerhouse, and served as Deputy Director, Office of Design and Construction. Mr. Duck also participated in Reclamation's oral history program. See Donald (Don) J. Duck, Oral History Interview, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in 1996, in Conifer, Colorado, edited by Brit Allan Storey, 2007-2008, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

years to do it, and if they couldn't do it, there's certain parts we could put out for contract. That seemed reasonable to me. But like I say, later on, there were some in Denver, when I came up for promotion somewhere they might spin a negative on it. "Well, he's anti-Denver." There were several over there that thought I was anti-Denver, and I was not anti-Denver.

### Unable to Create a Unified Coalition for CUP

I looked at it from more of a practical approach, how to get something done. The flip side of that is that when I—and this is getting off the subject a little bit, but there's a parallel there, that when I moved up here in 1982, and I was put over construction assistant to Cliff Barrett.<sup>19</sup> And I learned how Bonneville, the Central Utah Project, had been under construction, and how little progress had been made, and how the congressmen were fighting with one another, the district and the Bureau, they were all fighting. None of them were together. I said, "This is crazy. You're never going to get this done. You've got to do what we done on Central Arizona Project. At least if we have differences, let's thrash them out behind doors, that's what we did down there." I said, "From John Q. Public's viewpoint, we were all together, but, no, we had a lot of heavy duty constructions behind closed doors."

I never could get that off the floor up here. You know what? That is probably *the* reason that the district took over. They got legislation passed in Congress by Senator Garn and others that said the district would take over construction of the remainder of the Central Utah Project. I think that is one of the principal reasons it was done.

Storey: What happened that prevented you from unifying and moving the C-U-P forward?

Hirschi: I don't know. I mentioned it many a time to the players because the papers would run it up here about the odds between the different participants in this program. We just kept saying, "That's just not doing it. It's not cutting it." I don't know. There was just an awful lot of strong personalities up here. A lot of strong personalities had their own viewpoints on it.

In Congress Senator [Jake] Garn was probably the key component then as far as

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19. Clifford I. Barrett was Upper Colorado Regional Director from 1981 to 1989 and twice served as Acting Commissioner in 1981 and 1985. Mr. Barrett also participated in Reclamation's oral history program. See Clifford (Cliff) I. Barrett, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in 1996, in Salt Lake City, Utah, edited by Brit Allan Storey, 2009, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).



Congress, and then we had strong personalities of people involved. You had several districts involved. You had Robert Hilbert [phonetic] up here that was involved in a district, and Chris Jansen [phonetic] of the big district. I can't remember the name of the other district. There were several districts involved. So there were several personalities. It wasn't just one district like C-A-P. Several districts up here involved. I don't know. The personalities of all of them were such that we just couldn't quite bring it all together. And I'm not knocking any individual just collectively we could not just get it together. So the districts kind of perceived as the Bureau just wasn't getting the work done timely, and the cost was too high. It's a long story, but the end result was that, yes, Congress finally decided to give the responsibility to the district for the completion of the project.<sup>20</sup>

Back to C-A-P, I was proud of what we done on Central Arizona Project, very proud to be a party to a program that we conceived as a ten-year construction period and we done it. Congress just automatically more or less funded based on our budget, because it had some strong parties down there then in their congressmen. So it just became, "Okay, here's the C-A-P budget. We're committed to funding this thing." We had very, very little difficulty getting funds once we got that baby rolling.

The other thing we accomplished down there was that we said, "Okay, we've got to have people, too. We can't just have money. We've got to have full-time equivalencies," and they were putting real restraints on full-time equivalencies. You know what that is.

Storey: Yes. F-T-Es.

Hirschi: Right. So we said lower [unclear] the money. These are the number of full-time equivalencies we've got to have. And we got those, too. It's probably unique in the Bureau of Reclamation of getting both your full-time equivalency and your funding almost approved without question.

Storey: Yes, that is sort of unusual.

Hirschi: Well, I was really proud of what we accomplished down there. There was a lot of hard work put in by a lot of good people. But it was a team effort all the way. We had very little real internal struggles.

### **CAP Design Issues with the Denver Office**

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20. Dan Beard, in his Reclamation oral history interviews, also gave his perspectives on passage of the Central Utah Project Completion Act. 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., [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

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Probably one of the things that bothered Dolynuik and I the most was that we kept telling the Denverites, "All right, we built Reach Two, and these are the things that went wrong, and please change your designs to this." The next reach would come out would be for the old design. We'd hammer on them. Next time we want the spec we used. "Hey, we told you to change it. Why didn't you change it.?" They'd say, "Well, you know, our system's so big up here. It takes time to change these things."

That was probably the most contention we had with Denver was, "Why can't you make changes when you know and agree that they need to be made," in designs, when they actually built it something was wrong, and you had to change it in the field. But that was a big program. Have you ever been on the C-A-P at all—the facilities?

Storey: Just the offices.

Hirschi: Just the office. Well, sometime if you ever get the chance, you ought to just visit that massive pumping plant, the Parker Pumping plant on the Mohave that lifts that water 800 feet straight in the air.

Storey: We're talking about Lake Havasu, right?

Hirschi: Well, maybe I've got the wrong one. Havasu. That's it. Yes, Lake Havasu.

Storey: I think it is.

Hirschi: Right. I'm mixed up with—I've been using Lake Mohave, but it's Havasu. Correct everything to Havasu.

Storey: It's an amazing facility altogether.

Hirschi: It's a massive facility. Oh, that is a huge pumping plant. There was an interesting thing that happened there for posterity, that Manny Lopez, the Regional Director, and I decided on our own, just the two of us. The design initially called for, let's see, six, I think it was, six 500 c-f-s [cubic feet per second] pumping plants, six, or the other way around, five 600s. I don't know which. I believe it was five 600 c-f-s pumping plants.

Storey: Pumping units?

Hirschi: Units. [unclear] the design, and Denver was a good halfway designed on it. Well, some people that had been hired down in Phoenix in the operation and maintenance to start planning for the operation and maintenance decided they were going to change and go with a mix of big pumps and little pumps. One of the arguments they were

advancing was that we were having difficulty finding a holding reservoir in between Havasu and Phoenix—a re-regulatory reservoir. We were having trouble finding one, or a good site for one.

So they said, "Well, we haven't better assume that we're going to have a re-regulatory storage, and if we don't we've got to come up with different pump sizes, because we don't want to pump 3,000 c-f-s over here and only be using 2,000. So we want to put in a variety of pumps.

Well, I talked to Denver, and they said, "You do that and we've got to start over, because it changes everything, the size, the pumping plant, the intake manifolds, outtake. It'll set you back." I think they said something like a year and a half-, two years. So Lopez and I, one night, we started talking about this and we said, "Well, if we delay this thing, it's going to impact that ten years. It's a significant change." What we decided was, "We're going to have a re-regulatory storage period. We're going to have it, and we've got to base every decision on that." So we told Phoenix, "Nope. We're staying with the plan as halfway or two-thirds designed."

Storey: So this would have been before New Waddell [Dam] was picked out?

Hirschi: That's correct. New Waddell became the regulatory storage.<sup>21</sup>

Storey: Puts a little bit of pressure on finding a regulatory storage reservoir site, doesn't it.

Hirschi: It did.

Storey: Tell me more about Mr. Lopez.

### **Manny Lopez**

Hirschi: Lopez was one of the best managers you could work for. He had a very pleasing personality, very witty. Could be intense discussions and he'd pop out a joke, calm everything down. Really had a perception of what's right, morally right, fair, the sort of individual I saw more than once in the group setting, five-, six of us talking about a very sensitive issue where he could—I saw him chew out the regional planning officer very sharply for something he had done, but in the end, I'm sure Falcher [phonetic] would—it was Falcher—left feeling okay. He was the type of guy that could do just that.

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21. "New Waddell Dam, constructed between 1985 and 1994, stores Colorado River water for the Central Arizona Project, and also stores Agua Fria River runoff and provides flood protection by controlling river flows. The dam is on the Agua Fria River about 35 miles above the Gila River confluence and is located one-half mile downstream of the now submerged historic Waddell Dam, which was built by the Maricopa Water District (MWD)." See, "New Waddell Dam," [http://www.usbr.gov/projects/Facility.jsp?fac\\_Name=New+Waddell+Dam](http://www.usbr.gov/projects/Facility.jsp?fac_Name=New+Waddell+Dam).

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He could criticize you in front of a group and say, "You shouldn't have done that," but you left feeling okay, because there was a method he used to do it.

Probably if not the best, one of the best, individuals I've ever worked for from the standpoint of strictly management. Sharp individual. Didn't take long to brief him on a subject. He was very technically smart, and he used a little system that no one has ever used before that I've worked for. You'd brief him on something, and you'd go he'd say, "Check." In other words, "I understand." So you'd be briefing him, he'd, "Check." You'd brief some more, "Check." In other words, that was his way of telling you, "I follow. I'm with you." So maybe you'd brief him on something for ten-, fifteen minutes, and he might have five, six, seven "checks" in there. "Check," "Check." After you were done, very few questions. He understood it. Very great. Retired. Oh, we were upset when he retired.

Storey: Because you didn't want to lose him.

Hirschi: Didn't want to lose him.

Storey: What about Mr. Lundberg?

Hirschi: Very nice, pleasing guy.

Storey: Did he retire?

Hirschi: Yes, he retired, and unfortunately, dies of cancer of the voice box about three years after he retired. A very nice gentleman. Very pleasant. At that time he was there, not as much perhaps demonstrated drive and movement to get things done as Lopez. I mean, Lopez, like the ten-year period, and I've demonstrated the difficulty we had with Denver initially. That was Lopez. "Going to do it in ten years. That's what we said. We're going to do it of [unclear]." Well, maybe Lundberg may not have pushed that hard. "Well, it take twelve years." So a little different. Both effective in their own right, but a little different. But Lundberg was good to work with. Very good Regional Director.

Storey: Who chose you as the chief of the Division of Design and Construction?

Hirschi: Lundberg.

Storey: So Manny came after Lundberg as I recall.

Hirschi: Manny probably had a say in it, because it wasn't too long after that that Lundberg retired. So I would guess the two of them decided, but Lundberg I think left within a

matter of months after that.

Storey: When you left to come to Upper Colorado, was Mr. Lopez still the Regional Director?

Hirschi: No, he retired long before then. So he was followed by Gene Hinds, and he was followed by Bill Plummer. So Bill Plummer was Regional Director when I moved up here. Because what happened was is that Cliff Barrett was in Washington as Assistant Commissioner [planning and operations], and he got—the rumor has it, and I think it's pretty accurate—he got a little bit crosswise with some people in the Department who didn't see views his way. Cliff was a very forceful individual, and trying to get his views accomplished. Anyway, the upshot of that was that Broadbent, who was a very close friend of mine, was Commissioner at the time, and Bill Plummer was kind of in dutch up here in the districts, and so they moved Plummer to Lower Colorado, and Cliff Barrett to Upper Colorado.

Storey: From Washington.

Hirschi: From Washington. And he'd been here about a year when I moved up from Boulder City, and Plummer was R-D down there at the time.

Storey: Then after you had left, and after Plummer came, Mr. Hallenback?

Hirschi: Yes, and then after Plummer left, [Edward M.] Hallenback came on board, and after Hallenback was [Robert J.] Towles, and after Towles was [Lawrence F.] Hancock.

Storey: Larry Hancock.

Hirschi: I don't know if he's still there or not.

END SIDE 2, TAPE 1. AUGUST 12, 1996.

BEGIN SIDE 1, TAPE 2. AUGUST 12, 1996

Storey: This is tape two of an interview by Brit Storey with Weston Hirschi, also known as Wes Hirschi, on August 12, 1996.

Bob Johnson is now the Regional Director.

Hirschi: Yes. Yes. Someone told me that. I said, "Jeez, old Bob sure moved up fast." Yes. Really. He really did.

Storey: What other kinds of activities besides C-A-P were going on in Lower Colorado while you were down there?

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Hirschi: Big ones. Big program. Yes, we had second stage of Southern Nevada going on, which was . . .

### **Robert B. Griffith Water Project**

Storey: What was that about? Excuse me.

Hirschi: Well, see, the first stage of Southern Nevada Water—okay, let's back up. Now, the state of Nevada had something like 300,000 acre feet of water entitlement out of the Colorado [River], and you roll the clock back to 1965, they weren't utilizing a drop of that. Then in about 1967, they built the first phase of the Southern Nevada Project<sup>22</sup> to take water into Las Vegas, and they didn't envision building the second stage until probably about now. Yes, about now. But because of the population explosion down there, it was moved way ahead. So it started construction about the same time, maybe a little lag, as C-A-P.

Then that phase was the second phase, and that would have developed their full entitlement. That construction was completed by the time I moved up here, except maybe some—they were in that checkout—it was completed, but they were at shakedown process when I moved up here. That was going on.

Then we had that big massive construction program down in Yuma in the desalting plant going on. That's a story in and of itself.

Storey: Good. Tell me it.

Hirschi: Well, then we had Coachella Canal going on. We had a big program down there. Let me tell you.

Storey: You mean construction of Coachella?

Hirschi: Yes. Relining Coachella Canal.

Storey: Rehab work.

Hirschi: Rehab. But that was a big program. So we had a massive program. As I recall, we were getting something like \$350-, \$400 million a year. But Southern Nevada, just cover it quickly, it was a series of aqueducts and pumping plants to bring additional water out of Lake Mead and scoot it into Las Vegas. So you only had one pumping

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22. Mr. Hirschi is referring to the Southern Nevada Water Project, which is currently known as Robert B. Griffith Project. For more information, see Jedediah Rogers, "Robert B. Griffith Water Project," Denver: Bureau of Reclamation History Program, 2006, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

plant on the shore of Lake Mead, and had stalls for the second phase. I think that was even true of the next—no, that boosted it up to the top of the mountain, and then it was gravity from then on down. But then there was another (unclear) later on, second stage.

I wasn't on the first phase, but the second phase I was. The line goes through Henderson and to the south of the main part of Las Vegas, and cuts clear to the west of Las Vegas, then cuts north. The Las Vegas that existed when I lived there, now it's spread way out more. I can see where the line goes right now, through my mind.

Storey: It's amazing growth.

Hirschi: Amazing growth. I read in the paper here the other day that they expect to fully utilize that 300,000 acre feet by around 2002, 2007, they'll be utilizing that. Then they're already saying, they're already warning California that, "We expect to take away from you part of that surface water of Arizona's that you're now using," because California's taking all the surplus. Arizona's not using its full allocation. So Nevada's saying, "Hey, California, we're going to take part of Arizona's, so you just as well plan for it." (Laughter)

Storey: Yes, I think the way that's all set up, they get equal shares of the surplus, don't they, proportional to what they get normally?

Hirschi: I don't know if they've got a deal cut yet or not. I'm not that close to it anymore. Obviously, they would try to cut something like that.

### **Yuma Desalting Plant**

But now, the desalting plant,<sup>23</sup> of course, agreement was made at high level of government without worrying too much—and I'm not being critical on this, but without worrying too much on how to do it. It was more dealing with, "What can the United States do to satisfy you, Mexico? You're claiming you're getting too much salty water. What must we do?" And that's when he said, "Well, quit sending that salty water."

All right. We'll agree to diminish it by so much, and sign here," without getting into too many details of how to accomplish that, okay. Actually, I'm not being critical, but, okay, when it came to the challenge of how do you do this thing, then it really developed into some complications of how do you really do this from a practical

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23. The Yuma Desalting Plant was constructed to allow the United States to comply with Minute 242, an agreement between the United States and the Republic Mexico to lessen the salinity content in the Colorado River flowing into Mexico. For more information, see International Boundary and Water Commission, United States and Mexico, "Minute No. 242: Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River," August 30, 1973, <http://www.usbr.gov/lc/region/pao/pdffiles/min242.pdf>. (Accessed 3/2016)

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standpoint and make it somewhat cost effective. There's where it just became very, very difficult. Manny Lopez, see, had worked with Office of Saline Water, I think it was called once . . .

Storey: Yes, he did.

Hirschi: . . . and all those. That's where his background existed. So he came into Boulder City probably not by chance. He came into Boulder City with the blessing of a lot of people to oversee that desalting plant planning, which he did. Before he retired, the plan was pretty well fixed. Not the construction, but the plan was pretty much fixed by the time he left.

Storey: So while he was there and while you were there, Reclamation was looking at alternatives for how to accomplish that, or had Congress told us, "You're going to desalt that water?"

Hirschi: I think the plan called for a desalting plant. I think that was the plan. We had to determine the location and how to design it, because, gosh, this technology didn't exist on such a massive scale anywhere in the world. So it was left up to the Bureau of Reclamation to determine how to design it, where to design it, what kind of elements to put into it.

I'll tell you, that became quite an intriguing program. Here again, we had quite a lot of diversity of opinion with Denver, because they had never designed a plant. Matter of fact, we even advanced to them that that ought to be put out for contract, because we said, "You've never designed one. Chances are you'll never design another one. So why do we want to develop from ground zero the talents needed to develop this desalting plant when there's expertise out there that have built small units at various places throughout the world?"

We never did get that sold to Denver. We didn't take that on as a challenge like we did on C-A-P, that "You do it this way or else." But we did have some high-powered meetings with them that suggested very strongly, "Why do you really want to do this?" They really didn't, in our view, come up with a very good reason. But we didn't make it a do-or-die thing. "All right, if you guys want to take it on, take it on. But you are the ones that are responsible if this baby doesn't work."

Anyhow, while I was there, we got the construction started on the underground work. Dana Hill (phonetic), a construction engineer down there at that time, was there. Of course, there was all kinds of pipe systems, electrical systems that went underground. We dug a massive hole in the ground and all this pipe and electrical work went in. That part was done while I was there.



The other part that was done was a lot of research on the elements to go in, the reverse osmosis elements that they were designing in Denver and running tests on them.

Storey: The filters?

Hirschi: The filters. That was a major, major task. Of course, we used an awful lot of the technology in the private sector on that, and it was bid out. There were three or four that bid heavily on it. They developed these elements and then would run test on them to see how long they would last before they degraded. There were talking in terms of no more than five years' life in an element before it had lost it's effectiveness to the point where you've got to discard it, put in a new one. Those weren't cheap.

During the testing process, there was a lot of data that was kind of inconsistent. Well, have you got a good element or haven't you got one? We'd better do more testing. It was quite a struggle. It seems to me like when I left there was some talk in terms of, "Jeez, if we get three years out of these things we're going to be lucky." When I left there, there was still a lot of concern about the life of those elements and how much it was going to cost to keep replacing them.

### **Alternatives to the Desalting Unit**

Then the other big factor was during down time. See, this desalting plant wasn't going to work year-round, didn't need to. You'd shut it down. It was depending on the irrigation going on at Wellton-Mohawk, and how much salty water was coming down into the Colorado [River]. So, depending on that, you may or may not run the plant. So what really became a lot of serious discussion and studies and whatnot was how to put this unit into shutdown mode. But then the elements, you had to still keep running fluid through them. You couldn't just take them and shove them on the shelf, as I recall. You had to trickle water through them, I think, during the shutdown.

So the problems of the shutdown and the cost of it and all of that became tremendous problems and big expense. Well, the cost of construction that facility and the cost of maintaining it became much, much, much greater than was ever anticipated when that treaty was cut—treaty or agreement was cut with Mexico.

Of course, the environmentalists, some of them were coming on—not just environmentalists, some of the professors, and university, with some in California that said, "Hey, this is crazy. This is not cost effective. Just buy out Wellton-Mohawk. That will solve your problem." They suggested that very strongly. "You just go up there and tell all those people that live in Wellton-Mohawk, 'We're going to take possession of this land and turn it back to Mother Nature.'" So there.

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So we had to write up all kinds of pros and cons of doing just that. I was involved in that heavily, what's the pros and cons of buying out Wellton-Mohawk. Well, of course, the problem with it is the intangibles, taking over people's livelihoods and displacing them and all of that. Is that morally right?

Well, anyway, that never really went forward, and as a result, the plant was completed, and I was down there about a year, I think, after I retired. It was probably 1994. The regional engineers arranged a trip to Roosevelt Dam that I had worked with a lot. That's the other thing that was going on, which was part of Central Arizona Project, but it went beyond Central Arizona Project. It got into what we called "Plan Six." If they talked about it down there or not, I don't know, but what that was doing was rehabilitating those dams on the Salt and Verde [rivers] that needed some work on them, and then redo Roosevelt [Dam] as a greater flood control structure, because we'd had a flood down there that scared everybody when I was down there, and then after I left, they had one. So the best place to put it was at Roosevelt, and to do that we went into tremendous studies. I'll cover that in just a minute if you'd like.

Storey: Yes, I would.

Hirschi: But back to the desalting plant, I think it was 1994 when a regional engineer called me and said, "Would you go down to Roosevelt?" I said, "Oh, I'd love to go down there." While we were there, we would slip over to Yuma.

So we took the Bureau plane here and we went down, and he took two to three people. It was a learning experience for our engineers. It wasn't just a boondoggle. So he took some of his engineers and I went along on the ride. So we went to Roosevelt and looked at it. Then we flew over the desalting plant. Well, they had it done, and they were in the major shakeout program. Boy, there were having all kinds of problems with that thing, nothing we didn't anticipate. I don't know what's happened in the three years since, whether they've really got that thing rolling or not, and I don't know how it'll turn out in the end.

The investment in it now mandates that you do get the thing cost effective, just from a standpoint of technology, and the treaty or the agreement, because some day it will be very useful for the private sector. So it's kind of like going to the moon. There's a lot of spinoff benefits of that plan regardless of how much it may cost or how much it may cost or how much it might cost to operate. In the long run there's going to be some real technology, good technology spinout of that thing. So maybe the intangibles of the plant will someday be more important than the cost of it. That's all I know about that.

### **Plan 6 of the Central Arizona Project**

Now, back to the other thing that was going on was what we called the Plan Six, which was part Central Arizona Project and part Salt River Project. The dams on the Verde and the Salt [rivers] were built by the Bureau of Reclamation. So we still had principal responsibility for them, even though they had been turned over to the Salt River Project to operate and maintain.

So, the Safety of Dams Program. Now, Teton had collapsed, and we had now started developing the Safety of Dams Program. That came to bear at the same time we were realizing we had to do some maintenance work at some of those dams. So we developed what we called Plan Six, which was a study of the dams, and what's the best way to achieve three things: safety of dams and then flood control, and additional storage. See, the dam at the confluence of the Verde and the Salt . . .

Storey: Cliff Dam?

Hirschi: Cliff Dam . . . had pretty well be decided then we weren't going to get that off the ground because of the opposition from the Indians. That was real opposition. We could see the handwriting there that, hey, we just as well forget that and look elsewhere. That's where we named it Plan Six. Tremendous effort went into that. A lot of money went into studies on that. But as a result of that, we investigated a new dam site just below Roosevelt, about 500-, 600 feet below. We spent a lot of money investigating that.

Denver was leaning that way to build a new dam, but there were some ex-Denver designers, very reputable designers, who had gone to work for some private consultants, as a private consultant. They had gone to work for private companies. Some of those private companies, I'm sure they were getting a lot of information from ex-Bureau designers who were saying, "Hey, we don't agree that the most cost-effective approach is to build a new dam. We think rehabilitating the old one is the best."

Well, we were saying in the Bureau, "Jeez, it would be a shame to tear down and destroy that existing Roosevelt, because it was one of a kind. Really don't want to do that, list of historical places." So we were kind of leaning towards let's build a new dam.

Salt River [Project] was interested in rehabilitating the old one, and that's what actually prevailed in the end. Other than the core of it, they just tore it up to pieces. What they were going to try and do was to restore it on the downstream side, as close to natural as they could, but they'd never get the same. Of course, if we had built a dam downstream, we would have inundated it, too, so it probably didn't matter in the end. Yes, they rehabilitated. That was a tremendous effort. I got to see that when it was

halfway done. That was done and there was another dam. Let's see, there was Mormon Flat, Horse Mesa [dams]. I get them kind of mixed up which . .

Storey: Bartlett [Dam].

Hirschi: Bartlett, yes.

Storey: I don't know which ones were done.

Hirschi: Stewart Mountain [Dam] had major work. It had alkali aggregate problems and they went in and done an awful lot of re-tensioning in there on stress, using stress bars. An awful lot of work on Stewart Mountain.

Then we were going to build a new dam on the Verde [River], but we had difficulty finding a good dam site. I don't know what they ended up doing on the Verde, if anything. I really don't know. But then investigated a dam site below the Waddell [Dam]. We had investigated that dam site and found that probably the best thing to do there was construct a new dam, and I got to see that, too, half built. So that became the New Waddell [Dam], and that became the regulatory storage. So all that was going on from 1975 to 1982 when I left, and continued afterwards.

Storey: What about the lining at Coachella? What was going on there?

### **Coachella and All-American Canal Lining**

Hirschi: Dana Hill was there over that. The Coachella Canal and the All-American Canal were just more or less dug out of the dirt and water put in; they weren't lined. So the loss was tremendous. So we looked at relining Coachella and decided that was the thing to do. So we went in and lined with earth lining. I think that cost about 40 million, I think. It's a big program.

I think, I'm not sure, but they were talking seriously of redoing the All American with a membrane. Now, I don't know if that's ever been done or not, but I think that it probably has, because I think they're . . . Dana Hill retired, and I think they were trying to get him to go down there and be the construction engineer over that. He said, "Oh, hell, I worked enough." So I suspect, unless something's happened, probably All-American's been relined. That was a water salvage program.

And, of course, we had the Colorado River Front with the levee system work going on all the time. That was stabilizing that Colorado River and trying to minimize water losses.

Storey: What did the Wellton-Mohawk folks have to say when it was suggested that the way to solve the salinity problem was just to buy them out? Do you remember?

Hirschi: Well, I think they just thought that was pie-in-the-sky thing. I don't remember anything of serious concern up there surfacing. I don't think there was. I think they pretty well understood that, hey, there's no way they're going to just come up and buy us out and move us out. I don't think they felt this was ever a really serious viable plan. There was a professional, down in, I think it was Sacramento, that was pushing that, but he really never got it off the ground.

There was a congressman or two that kind of played with it a little bit. "Well, maybe this is a good idea. Maybe the Bureau of Reclamation really ought to study it." We did prepare some material that we sent back to Washington on the pros and cons of it, but it was a very little small brush fire that developed. Really never slowed anything down as far as construction on the desalting plant.

Storey: If I'm figuring correctly, you were stationed in Boulder City for about fourteen years.

Hirschi: I was there seventeen. Moved out in '65, left in '82.

Storey: Did you actually live in Boulder City?

Hirschi: Yes.

Storey: Boulder City, of course, is a Reclamation town.

Hirschi: Correct.

Storey: What was it like? And did you still have that flavor of being a "Reclamation" town in those days?

### **Living in Boulder City**

Hirschi: Yes. In 1965, the population was probably right around 4,000-, 4,500 mark. It was still characteristic of the Reclamation town. The Bureau of Mines had, I think, about 100 people there, and the Park Service was there, so the three agencies hired an enormous amount of people that lived right in Boulder City. So even though it had been turned over to Nevada, it was still kind of a government town, so to speak, and a very desirable place to live. If you were going to live in the desert, it would be hard to beat Boulder City in 1965.

Then it underwent some growth, quite a bit of growth. When the busing issue

developed in Las Vegas, back in those days when we were starting to bus the colored folk into different schools. There was a lot of concern that that was going to happen in Las Vegas, and a lot of the Las Vegas people moved to Boulder City during that period. Even though the busing never did materialize, they thought they were going to get out before it happened. They just didn't like that concept of busing their kids from one point of Las Vegas to another. So there was quite a little burst of growth then. Then it kind of stabilized a while, then they started having a flood of people coming in from California and elsewhere. So that when we left there in '82, I suspect, we had probably a population of 7,500, I guess. Now it's much bigger than that.

But while we were there, when that was turned over by the government to the city of Boulder City, there was an allocation of water and an allocation of power given to the city. So our water and power, utility bills were very, very low. Very, very low. As a matter of fact, when I moved from Boulder City to Bonneville in '82, Bonneville got most of their power off of the Sierra Colorado Storage—let's see, what do you call it, CREDA, Colorado River—CREDA—well,<sup>24</sup> anyway it's off the Reclamation-built dams. Okay. Bonneville was pulling most of its power through [unclear] off of the storage project built by Reclamation. They had an engineer in Bonneville that could see the handwriting. Well, so their cost up here, Bonneville was about 60 percent [unclear] in utility bills. The Bonneville was twice what I was paying in Boulder City. (Laughter) That just gives you a flavor. Yes, we like Boulder City. The kids loved it because . . .

END SIDE 1, TAPE 2. AUGUST 12, 1996.

BEGIN SIDE 2, TAPE 2. AUGUST 12, 1996.

The kids liked Boulder City, not just our kids, but kids loved Boulder City because they could see their place in the city. I mean, they could walk to the outskirts of the town without any problem. So they could identify where they lived. It's not like living in downtown Los Angeles—"Where am I?" so to speak. They just could relate better. "Well, here I am, and, gosh, here's the outskirts, and I can walk to it." At least that was always my feeling, that that was one of the reasons kids liked it there. It was small, and you know an awful lot of the people that live there, the little community activities. I've always liked small places. So the kids enjoyed it there and we liked it there, but that's when it was smaller. It wouldn't be the same today.

Storey: Was there every any talk of moving the regional office to Phoenix while you were there?

### **Moving the Regional Office to Phoenix**

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24. Mr. Hirschi is referring to the Colorado River Storage Project.

Hirschi: Yes.

Storey: What was behind that?

Hirschi: Well, Cliff Pugh pushed that quite hard, because at that time the only thing that was on the horizon in the way of construction was the Central Arizona Project, because First-Stage Nevada had been done.

The only thing that was ongoing was the Colorado River Front Work and Levee system, and that was a program that Arleigh West pushed very hard, with the support, of course, of all the districts that used water out of the Colorado from [Lake] Mead on down, and that was a lot of districts, including those in California, because the program that was envisioned then was a water salvage program. Southern California was needing water, and they were having difficulty getting it from the north–Northern California, so it looked like an easy way to get more water was to reduce the loss of water, and the lower Colorado [River] had all kinds of phreatophytes along its lines that sucked up the water and emitted it into the air. The stream was wide and meandered many places, so you had the combination of phreatophyte and evaporation of the water

### **Colorado River Levee Program**

So the program was developed to, "Let's get rid of a lot of these phreatophytes, and let's narrow the river down, so then we'll save a lot of water." These are planning reports I was working on, how much water we were going to salvage on that Colorado. I'm going from memory way back, but I think we're, we're talking maybe about a couple hundred thousand acre feet a year, 100,000, I don't know. It was quite a lot of water, if you developed the program in its fullest.

So when I moved down there, they had already worked in about three. I think we had it in about seven reaches from Davis Dam to Imperial Dam. I think it was divided into about seven reaches, like Topock Reach, Palo Verde Reach, Imperial Reach. They had a sixteen-inch dredge going, and a littler one, too.

So one of my responsibilities was to develop project reports parts on the reaches that hadn't been worked on. One of them was Parker Division, another was Topock Division. This, in my view—and I don't think I'm wrong—is where the so-called environmental movement really started, was right down there on the lower Colorado. Stewart Udall was Secretary of the Interior at the time. The environmental people started worrying, and they used to say that the Bureau's plan was to put the Colorado in a concrete ditch from Davis Dam to Imperial [Dam]. That's what they were saying. Well, that wasn't true, but that's what they were saying that the ultimate goal was.

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Actually, the plan was to narrow it down by building dikes and narrowing the river down and reducing the amount of water loss, then take out a lot of phreatophytes, which never really happened. That was a plan. Those . . . in the big oxbows that wind around, that developed over time, actually in the (unclear) Division, the new channel was developed (unclear) with some meander which you've got to have, but cut off a lot of those big oxbows, just shut them right off, and we cut a new line. That was done before I went down there.

Well, the environmentalists and the fish and wildlife people in California, and the fish and wildlife people in Arizona, they all kind of got concerned about what was going on. I think their major concern was the next step, and that was taking out a lot of phreatophytes. So they developed a campaign of opposition towards it, and it was gaining momentum when Arleigh West wanted to dredge in Topock Division. Topock sat just south of Needles. The Colorado River Front and Levee System Program was authorized because the sediment that was carried by the Colorado dropped out into the mouth of Topock Gorge. It dropped out there and built up the river bottom, and actually started to flood back towards Needles. It became an emergency program. If they didn't do something, Needles was going to flood, the town of Needles.

So the Colorado River Front and Levee System Act was passed. A non-reimbursable program, and the purpose was, it was a very short act, but the main thrust was to stabilize and control the Colorado River. That was the mission. Arleigh West thought—I'm using him; I'm sure there were others that supported that—thought we ought to dredge through the Topock Gorge, because what they did was they put in a settling basin right at the mouth of Topock. That was one of the first things they done when they got the act approved. They went in there and dug a big settling basin, and a dredge worked in that all the time. That became the trap for the sediment that came down, and that dredge was working in there all the time.

Well, the time I moved down there in '65, my gosh, there was big, big banks for miles and miles of this sediment that had been pumped out on the shoreline, and it was becoming kind of an eyesore, and then you had to pump farther, more cost. Arleigh got the idea, not just him, but he was the Regional Director at the time, why don't we just put a dredge right down through Topock Gorge, and then we can shut down that settling basin for a number of years, and the sediment will carry right into the Lake Mohave,<sup>25</sup> I guess it is, if I've got them straight now. The Mohave would be about Havasu. Yes. Right. And it will carry out into Mohave, and then we'll have to crank up probably the settling basin at the time maybe or do a little more maintenance in the mouth.

Well, so we had the order for a brand new sixteen-inch dredge. I think the one

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25. Referring to Lake Havasu behind Parker Dam. Lake Mohave, behind David Dam, is above the Topock Gorge area.



they had was a twelve. That was on order, and we had the plan all set. The report was written; everything was set. It was a go. Topock Gorge is a beautiful little gorge. I've boated through it many times. The letters just started pouring into Udall about, "Stop! You've got to stop this Bureau of Reclamation in the lower Colorado!" Of course, they used Arleigh West's name frequently, "Stop them!" And no way was Arleigh going to stop. No way.

Well, it got pretty hot in the Secretary's Office. Finally a decision was made, "Stop." The order for the sixteen-inch dredge was cancelled, and we were in the process, I think of dismantling the twelve-inch. Yes, it was half dismantled to move out to start the work, and the new sixteen coming. It was all canceled. To this day, as far as I know, the dredge is still working in the settling basin, and Topock has not been touched. That, in my view, is where the environmentalists saw success in stopping what they thought was a threat to the environment, and from then it's all history as to what they have accomplished.

Storey: This would have been after '65 when you moved down to Boulder [City]?

### **Regional Environmental Office**

Hirschi: Yes. I would say this happened—let's see. I moved over to Sharp's office in '70, and it happened before then. So it was, I would say, matter of fact, Al Jonez you might say was the first environmental officer in the Bureau of Reclamation. He was hired by us strictly to help us on the lower Colorado after this thing happened on Topock. We picked him up from Nevada Fish and Game. He was a high official in Nevada. He wasn't the head, but he was high up, and he got disenchanted because they passed him over for the head job, and we picked him up. He was very good. He was helping us on the lower Colorado. "What can we do to continue a reasonable program down there? We've lost Topock, but what can we do now?" So we brought him in, and I think that was about '68. So I would guess it was right around '67 when that Topock work was stopped.

The phreatophytes, what we worked out with them then after that was, okay, we worked out some programs with then the environmentalists and the Fish and Wildlife people on strip clearing. In other words, instead of a big mass of phreatophytes, strip clear part of them so that the animals and birds and whatnot, they, according to them, liked to be able to have bare spaces between these strips. So we done quite a lot of strip clearing, but nothing like we originally envisioned. The plan was significantly modified.

Then Jonez became the head environmentalist in Washington. He went there about the same time that Sharp was hired down there. Sharp played a major role in that

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Lower Colorado in working out agreements with Fish and Wildlife people as to what we could do down there. That's where she all started, I think for good or for bad.

Storey: You mentioned that there was a flood that threatened Roosevelt. Could you tell me more about that?

### **Salt River Flood**

Hirschi: Yes, well, let's see. That was, let's see, '75. I think I was regional engineer at the time. I would guess that was in the period of, I'm guessing now, but I would say somewhere about '77 would be a guessing date, when we had a tremendous downfall of rain in the headworks of the Salt [River]. Man, it came and came and came, and the reservoir started filling and filling and filling, and pretty soon had the outlet works wide open and it was still coming up, still raining, and a lot of worry about are we going to get through this or not; we'll lose this thing.

They had the outlet works wide open, both spillways were operating, and this was probably, I believe, the first real test on those spillways. The one on the south didn't perform very well. It cavitated and eroded very badly, and done extensive damage to the spillway and extensive damage to the powerplant that sit below it. If it hadn't have cavitated and damaged like it did, it would have missed the powerplant. But after it had extensive damage, it changed the flow pattern and squirted it over on top of the powerplant.

I'll tell you, there was a lot of concern. If Mother Nature hadn't of turned, who knows what would have happened. That's the first time that that real test had come, to my knowledge. It was then that the awareness came that, "Hey, this could happen again. We'd better start doing something to give Phoenix more protection," because, see, Phoenix had grown significantly, and they had allowed an awful lot of encroachment, so to speak, on the lower Salt [River] west of Phoenix.

Storey: On the flood plain?

Hirschi: Yes. Tremendous amount. And they sustained a lot of damage during the period I'm telling you about. Back in those days, there wasn't a real strong enforcement—well, back up. Zones, setting up zones for control of housing and this sort of thing really weren't in effect, or if they were, they weren't effective, for neither the Salt or the lower Colorado, and there was an awful lot of encroachments. We were dealing with that on the lower Colorado much before this incident on the Salt. We were working with the counties to, "Hey, you've got to control this growth along here, because we're telling you, we have a hundred-year storm frequency down here which we're trying to control without levees, but out levees are not rock-lined." They've worked on [them] a lot

since, but at that time they were just piled-up sand. We told them, "Hey, if we get us the same flood of a hundred-year storm down here," which I think was 100,000 second feet, "these docks are going to fail. You've got to start," and we had that in motion. We had gotten their attention, and they were starting to get into that pretty heavy.

Well, on the Salt, there was a awful lot of this encroachment, so to speak, and that's when that flood come done a lot of damage down there. Got their attention. So we started looking at more storage. What can we do? That's part of the Plan Six [for the CAP] I told you about.

Then after I moved up here, they had another incident that wasn't so bad, but as I recall, they had another incident down there on the Salt that kind of replayed it again, not as bad, but gave more emphasis. Of course, the technology developed, whether for good or for bad, but gave more emphasis. Of course, the technology developed, whether for good or for bad, you can argue that point, but the computer era, these hydrologists can plug in all this data, all the storms that have occurred in history of record, and plug it all in, see, and they can—what do they call it, the word?

Storey: Model?

Hirschi: It's a model. They have another word for it. But they can model what might happen. So they kept upping the maximum probably floods, and it got to the point where we kept telling them, "Hey, this is crazy." I mean, they were wanting to add so much capacity to our reservoirs, it was making them infeasible. We kept saying, "This is crazy."

Well, Denver was set up with 700 and 200<sup>26</sup> like the regions. These models on flood control were over in 700. They were having big battles up there between 2[00] and 7[00] over this too. It was starting to get ridiculous, in my view. My gosh. We finally brought some sense to it. Before I retired, we finally brought a little bit of reason to this thing. My gosh, we can't get so ridiculous that you can't even build anything anymore. But it did demonstrate that probably those early dams that were built on the Salt and Verde, especially the Roosevelt, was deficient as far as what might happen. Yes.

Storey: In '75 did you become the regional engineer?

### Promotions

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26. Referring to office codes 200 and 700. These codes were generally, within Reclamation, parallel in the regional, Denver, and Washington, D.C., offices of Reclamation. Code 200 was design and construction with a division for each function and branches within each division. Code 700 was the planning office under which there would be various offices and branches. The two offices apparently differed in their opinions about which projected maximum probable flood to use in guiding design of Reclamation facilities.

Hirschi: Yes.

Storey: So that's another title for the chief of the Division of Design and Construction?

Hirschi: Yes. Regional engineer.

Storey: How did that happen? What happened that you were able to get that promotion then?

Hirschi: To get it?

Storey: Yes.

Hirschi: Well, I had worked up here on the Weber Basin Project as a field engineer on the fourth phase of Willard [Arthur V. Watkins] Dam, which is a unique dam, by the way. It's built on the old salt bed of the great Salt Lake.

Storey: This is the one that's the ring.

Hirschi: That's a unique dam. That's one of a kind.

Storey: We talked about it before.

Hirschi: Okay. And I was on the last stage of that one, fourth schedule. Plus I had the Willard Canal that was a two-way capacity. I had that experience, and then on the Front Work and Levee System work, we had construction going on there which I was kind of involved in. So I had construction experience. So when the job became vacant as a chief of the Construction Branch, I applied for it. I think, based on my previous experience, plus, not bragging, but I was considered probably to be a fairly good manager and skills that they probably wanted, so I was picked for that job.

Storey: You applied for that and competed?

Hirschi: Yes. Right. Competed. Then when Bob Austin retired, I put in for that job, and they picked me for that.

Storey: Once again you competed?

Hirschi: Oh, yes.

Storey: Was that a promotion?

Hirschi: Yes.

Storey: So then you were a fourteen?

Hirschi: Right. Fourteen, right.

Storey: Then in '82 you got a new job.

Hirschi: Yes.

Storey: What happened there?

Hirschi: They were making a lot of changes then, moving a lot of regional directors around and moving a lot of people in high management. I applied for this one up here as my first choice. What they did was they put out an advertisement as Assistant Regional Director in Reclamation. Then they would decide where to put you. I think I said, well, my first choice was Salt Lake, and I might consider one—I won't consider California, because if I did my wife would have a heart attack. She just has a dreadful fear of earthquakes. But I think I had to tell them Salt Lake first choice, and then maybe one other. I don't remember. Maybe Boise. So I was picked for up here.

Storey: So this was the Assistant Regional Director's position.

Hirschi: Yes, under Cliff Barrett.

Storey; Then was there only one at that time?

Hirschi: They had the Assistant Regional Director for Administration, yes, Frank Knell.

Storey: Frank Knell.

Hirschi: Yes. Do you know him?

Storey: Yes, I've interviewed Frank.

Hirschi: Have you?

Storey: Yes.

Hirschi: Is he retired?

Storey: He retired about three or four years ago now.

Hirschi: He's in Cedar City, I understand.

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Storey: Oh, is he?

Hirschi: He was building a cabin. He's from Cedar City.

Storey: Yes, that's right. He and Ellis Armstrong.

Hirschi: He and I became good friends. His goal, and I think he's achieved most of it, his goal was to get his doctor's degree. That's why he took the job in Washington—to get his doctor's degree. Then to retire, move to Cedar City, build him a cabin up on Cedar Mountain, which he's done, and get him a part time job at the school in Cedar City, teaching governmental organizations or affairs or whatever. That was his goal. I'll bet he's probably achieved it. He was the assistant for administration.

Storey: And you the assistant for . . .

Hirschi: He was a fourteen. I was assistant for everything else as a fifteen.

Storey: What was the title?

Hirschi: Assistant Regional Director.

Storey: That was it?

Hirschi: Yes.

Storey: But you said a fifteen.

Hirschi: He was called Assistant Regional Director for Administration, and I was just Assistant Regional Director.

Storey: Okay. So you became a fourteen when you became a division chief, and then a fifteen . . .

Hirschi: As a regional engineer.

Storey: . . . and regional engineer, and then you became a fifteen when you came to the Assistant Regional Director's position.

Hirschi: Yes. And Cliff Barrett was—let's see. Yes. I guess they had the senior exec [Senior Executive Service] going then.

Storey: Yes. It started under Jimmy Carter.

Hirschi: Yes. He was a senior exec. So there was three of us.

Storey: Well, I'd like to keep going, but we've gone twenty minutes of the time I promised you.

Hirschi: Oh, okay. That's all right. If you want to go a little longer, that's fine.

Storey: Do you want to keep going?

Hirschi: It doesn't matter. I'll just catch a bus out of here. I came in on a bus and I'll go out on a bus.

Storey: Tell me what your responsibilities were the.

### **Assistant Regional Director's Responsibilities**

Hirschi: Here?

Storey: Yes. Tell me about your move up here to the Salt Lake area. What were your responsibilities as Assistant Regional Director?

Hirschi: Everything except administration, so I was responsible for the construction program and the operation and maintenance program and the—well, actually, if you run through it: the 200, which was construction; 300, which was the budgets and finance; the 400 was operation and maintenance; the 500—no, that was administration; the 600, which was power, which we had a Power Division up here which the other regions didn't have; and 700, which was planning. Plus, I worked very, very closely and extensively with public affairs, Barry Wirth.

Storey: You said budget. That wasn't part of administration?

Hirschi: Nope, not in this region. It was in Lower Colorado.

Storey: Yes, it depends on where you are.

Hirschi: Yes. And of course, we had a lot of field offices, so I assisted Cliff over those.

Storey: How did this work? If Cliff Barrett was the Regional Director, he also had responsibility for all of these, presumably.

Hirschi: Right. Exactly.

Storey: How did it shake out what you did and what Cliff Barrett did?

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### "Cliff and I Worked Very Good Together"

Hirschi: Cliff and I worked very good together, very good, and complemented each other. I had skills and experience in areas where he didn't, and vice versa. So you couldn't have found probably two people who would have complemented each other much better, and he said that to me, and that's the way I felt. So we had an excellent working relationship.

He hobbled the political aspects of it more than I did, the interface with the key heads of the districts and with Washington, and this aspect of it, which he enjoyed, whereas what I called myself is a button-pusher. I used the word, "I'm the button-pusher." In other words, I'm going to make things happen. A lot of that came from my experience in Lower Colorado. If you want to get something done like C-A-P, say we're going to do it in ten years, then let's do it, and don't get in my way. So I was more of a hands-on, dealing more with the details and the specifics of the programs, and make things move. I'm not saying he wasn't interested in that, but I carried a heavy load in accomplishing that.

All major decisions that—and it took us a while to evolved into this, but all of the major decisions that I felt I wanted him to make or at least participate in, I took to him. Now, if it was something where I felt that, well, this is something that me and the construction engineer, or me and Wayne Cook who was the operation and maintenance chief in the region, could make, we'd do it. So that's how I . . .

END OF SIDE TWO, TAPE TWO. AUGUST 12, 1996.

BEGIN SIDE 1, TAPE 3. AUGUST 12, 1996.

Storey: This is tape three of an interview by Brit Storey with Wes Hirschi on the thirteenth of August 1996.

Go ahead Mr. Hirschi.

Hirschi: So we evolved in this probably within the year, had it pretty well down where I had a comfort factor on what decisions I could make and he had a comfort factor that any decision I made was okay. He never was one who would come back and second-guess you. He was excellent that way. If you made a bum decision, it was a bum decision, but he'd not chew you out and say, "You make another one of those, you're going down the road." It was excellent in that regard. Cliff was a good supervisor. So that's kind of the way we worked.

The construction program up here was heavy, also. I worked closely with the construction engineers. We tried to incorporate a lot of the same approached that we



used on Central Arizona Project. Let's develop a schedule of construction and stick to it. I told you earlier I tried to tell all the powers-to-be, "If we really want to get this Central Utah Project built, we've got to change our ways," and it's not built, and it never will be built in its entirety. Times have changed. And maybe that's good, maybe it shouldn't have been built. It was under construction far too long. It wasn't economy of construction. We're having difficulty getting a lot of funds because we just weren't united. Anyway, that's another story.

### **Permanent Management Committee**

But that how Cliff and I worked. They started what they called the Permanent Management Committee.

Storey: P-M-C.

Hirschi: P-M-C, about then. That took the regional directors out a lot. They had a lot of meetings. Of course, I got involved in that because one two times I acted as Regional Director up here, on two separate occasions for close to six months each. One of them was when Cliff went back to act as Commissioner, after, I think it was Bob Olson left, or maybe it was before.

Storey: Between Broadbent and Duvall, I think.

Hirschi: Let's see. Yes. Okay. Yes. That's right. Between Broadbent and Duvall. When he was back there, then I was acting here. Then the other time was when he retired and before the hired Roland Robison,<sup>27</sup> I acted. So I got involved in that P-M-C quite a lot. I told them back there once in Washington, I don't know as they wanted to hear it, but I told them anyway, I said, "Look, I don't know about the rest of you regional directors, but I've got a big program out there. I delegate, but you've got to be there for certain decisions and things. So if we continue to have all of these P-M-C meetings, hey, that reach is not to get the attention it ought to have."

It didn't change things. I think it fell on deaf ears, but that's how I felt, and that's how these people here felt, my division chiefs. But they were pulling me away too much. But when I was here, then Cliff could go. It was okay. But when Cliff was gone, hey, there were too many P-M-C meetings.

Storey: You mentioned earlier that you were a friend of Commissioner Broadbent's. Where

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27. Roland Robison interviews are included in Reclamation's oral history program. See Roland Robison, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interview, conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, September 27, 1993, in Salt Lake City, edited by Brit Allan Storey, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

did you meet him?

**Commissioner Broadbent**

Hirschi: He was my neighbor in Boulder City. We lived . . .

Storey: Or, really.

Hirschi: Yes. Yes. Next door to each other. He was a notorious commissioner down there—Clark County Commissioner. He was trying to clean out any mafia that existed. Had quite and acquaintance there. Lots of stories on Broadbent and how his drugstores got burned out twice, the mafia used to bother his wife. Anyway, that's another story, but that's where I got to know him.

Storey: Well, I want to be diplomatic, but I don't know that there's any other way to say it. Did he have anything to do with your being appointed to this position?

Hirschi: I hope not, because I told him right up front, "I don't want anybody putting me anywhere by force," and he assured me he wouldn't. Now, I have no perfect knowledge of whether he did not didn't but that was my wish.

Storey: What was he like? I've never met Mr. Broadbent. What is he like?

Hirschi: If you met him and spent a few minutes with him, you would think that he was an old hick farmer, if that's what you want to call them. Just came out of the corral milking cows and probably wasn't very skilled in politics and this sort of thing. You would be dead wrong. He is one of the most clever politicians you'll ever find. Just seems to understand it and can preconceive the ramifications of this or that. Wasn't a great orator either, as some [are]. He just had that instinct for politics. That made him one of the most successful county commissioners you would ever find, and his name was notorious in Clark County.

Storey: For good or bad.

Hirschi: For good. For good. So when Jim Watt<sup>28</sup> came aboard, he expressed an interest and was picked up, so between the two of them, they just kind of took on the establishment. They were pretty well dictating what went on as far as the Department was concerned, and a lot of the higher-ups, and for good or for bad. The Regional Director was skeptical when he came in—a pharmacist coming in to run Reclamation? But I'll bet you if you talk to most of them that were around when he left, they would say, "Hey, pretty

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28. James G. Watt served as Secretary of the Interior under the Reagan administration from 1981 to 1983.

darn good Commissioner, fought for what he believe was right, and let the chips fall where they may."

Storey: When you came up to this position as Assistant Regional Director, were there things you had to adjust to?

### **Adjustments to the Assistant Regional Director's Position**

Hirschi: The main thing that I had to adjust to was how Cliff wanted me to operate. As far as the work, that was no problem, because I'd had experience in essentially all of it. I'd worked in construction. I'd worked in environment, I'd been involved in operation, so no one was going to pull the wool over my eyes unless they were pretty shrewd. At least that was the way I felt. So it was mainly working out on my relationship with my boss, Cliff, and getting to know the key players that I would work with. That was where I focused my attention.

Some of them I had already known. I'd known Lane Cook from Weber Basin, who was 400 chief. I knew Kirk Carpenter from Weber Basin, who was Project Manager at Provo. I knew Dana Hill, who came up from desalting plant as construction engineer at the Dolores Project. And there was others I knew. So I didn't come in to total strangers. I knew quite a lot of the people here in Upper Colorado, and that helped. But it didn't take Cliff and I long to establish what he wanted me to do so that I felt comfortable when moving out. Most everything we saw eye to eye. His judgment and mine ran pretty much alike. I liked Cliff.

Storey: Yes, that's very obvious.

Hirschi: I really enjoyed working for—in fact, all the regional directors I've worked for really I enjoyed working for. I never had that much trouble with any of them. The most demanding, I mentioned, was Arleigh West. I'm not saying that as criticism, but he was the one that wanted you to know who's running the show. As long as you understood who was running the show, you were okay. Well, the other regional directors weren't quite that demanding that you know who run the show. So I worked for Arleigh West. I worked for—we've names them. Lundberg and Lopez and Gene Hinds and Plummer and Barrett and Robison, and maybe I missed one. I don't know.

Storey: I think you had left before Charley [Calhoun] came [in as Regional Director in the Upper Colorado Region].

Hirschi: Yes.

Storey: Charley Calhoun.<sup>29</sup>

Hirschi: He came when Roland [Robison] retired.

Storey: But there's a change in responsibilities between being a Division Chief and being an Assistant Regional Director.

Hirschi: Yes.

Storey: You didn't see anything in there that you had to adjust to?

Hirschi: Heavier workload, much heavier workload, more people problems, bigger scope, because, see, we had a project office in Provo, two offices in Provo, project office for planning and one for construction. We had one in Grand Junction, one in Ridgway from Ridgway Dam at—can't think of it now.

Storey: Is it Montrose?

Hirschi: Montrose. One in Montrose, one in Dolores.

Storey: One in Cortez for Dolores.

Hirschi: Cortez and one in Durango. Then Navajo [Indian] Irrigation Project. Who have I missed? I think we got them. Then up here I had 200, two, four, six, eight, missed eight before, 800 contracts. I was [unclear] here; 150 was under me, so I had 150, 200, 300, 400, 600, 700. There were fourteen to fifteen—I had up to sixteen people at one time that might interface with me or with Cliff on my side. Then on Frank Knell's side, he had the administration, which was 500 and 900 and 1100, which was computers.

### **Extensive Regional Program**

I remember when Bill Plummer moved to Boulder City, and we were kind of razzing him about, "Well, you guys, you really didn't have a very big program up there. You're going to find out down here it's not such an easy row to hoe."

I remember him saying something to the effect of, "It might look that way, but it's just the reverse." And he was right. I'm not saying we didn't have problems down

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29. Charles Calhoun served as Upper Colorado Regional Director from 1994 to 2000 and participated in Reclamation's oral history program. See Charles (Charley) A. Calhoun, *Oral History Interview*. Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, from 1994 to 2009, in Salt Lake City, Utah, and Denver, Colorado, edited by Brit Allan Storey, 2010, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

there, but when I came up here and after a few months, I could tell Bill Plummer was accurate. I mean, this was a tremendous challenge up here. There was a lot of divisiveness, that I've mentioned amongst the—not Reclamation, but out there as a whole to get some of these projects going. Much bigger challenge up here than down there.

Like I say, as far as the work that was going on, that was just, by and large, not that much new or different from what I'd already experienced. It was just getting to know the people, how to work with them effectively, and especially Cliff, and that didn't take too long. A year. I was in the saddle, I'm sure, in a year, pretty well in the saddle.

Storey: When you say there were more people problems, what are we talking about here?

Hirschi: Oh, I don't mean there were more people problems at Reclamation. I mean getting back to, especially on Utah projects, or the . . .

Storey: C-U-P?

Hirschi: . . . C-U-P where we had the big districts, Central Utah Water Conservancy District, and then two more districts here in Salt Lake, a district out in Uinta Basin, two congressmen, two senators, and the fact that a lot of the work that we were doing was on Forest Service lands, and we were obligated to perform the mitigation as required, plus a special program up here. We had authority for enhancements up here. Tax-free, I mean, non-reimbursable money for an enormous amount of enhancements up here in this region on these projects that were authorized. So we had a lot of people involved in high places, political positions.

I had one instance where I had one senator, one congressman call me when I was acting for Cliff and tell me not to do something. The same day, or the next day, I had a senator call me—the congressman himself called me, but the senator's aide called me and said, "Don't you do what this congressman wants you to do." Now, how do you like that? How would you like to be in a position like that where you got a congressman calls you and says, "This is what I think you ought to do," and the senator's guy calls and said, "You hadn't better do what he wants you to do." Well, I had that experience.

That's the thing I'm talking about, and it wasn't just me, it was Cliff. We had some real tough meetings with these districts. I'm not saying they're wrong and we were right, I'm just saying that we didn't have agreement. We had some real tough meetings. Some of those, I'd see Cliff come out of, I was thinking, "My gosh, is he going to last this?" Real stressful meetings. We had them in Lower Colorado. Of course, down there I was Regional Engineer, but as such I was pretty well

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knowledgeable and involved in most everything. And it was tougher up here. It was tougher. It was tougher. Overall, it was tougher up here.

Storey: So you're talking about relations outside Reclamation to other groups.

Hirschi: Yes. Right. Outside Reclamation.

Storey: Tell me how you resolved your situation with your congressman and your senator.

Hirschi: (laughter) Well, we didn't do anything at that point in time. It was how to utilize some lands. I think the issue was whether we should turn over some—see, we acquired a lot of land up here for mitigation purposes. The question came up as to whether we should turn—we wanted to turn those lands over to somebody to administer. Well, it got to be a real battle as to whether it should go to the state of Utah or to the Forest Service. That's what that was all about. One of them wanted to go the state and one them wanted to go to the Forest Service.

### **Land Administration Issues**

Well, nothing was done at that point in time, and then things changed later, and things evolved in a different direction. I can't remember now how it really ended up. We got in a lot of those, what to do with those mitigation lands. We didn't want to maintain them, but who do they go to. And the Indians were wanting some of them, too. So we had a lot of tough meetings over that.

Storey: This is fish and wildlife mitigation lands?

Hirschi: Yes. There were a lot of lands that were bought for mitigation, but bear in mind, authority for enhancement. You know what the enhancement is, it goes beyond what you're required to do for just strictly mitigation, that is, negative impacts due to your construction. You can build enhancement things. When Phil Sharp was here, they made the decision, Phil and whoever, that they would go ahead and buy lands in advance of their need at that point in time. So we actually had what we called the lands bank up here. I'm not saying whether that was a good decision or a bad decision.

Storey: This was for C-U-P?

Hirschi: For Central Utah Project. So when I came up here they had this land bank. I said, "What's this land bank you're talking about?" They said, "Well, the decision was made that whenever we see an opportunity we think is good land to have for mitigation or enhancement, we're going to buy it, even though we don't necessarily need it today, but when other construction is built, we'll need it. We're going to use it for that, because

you don't necessarily mitigate right on site. It can be removed." So we had that. So there were those lands, and a lot of them the Forest Service was trying to get hold of, and some of them the state was trying to get hold of, see. So we had a lot of trauma, a lot of trauma over that.

### **Jordan Aqueduct**

Another thing was that we built the Jordan Aqueduct, which comes from the mouth of Provo Canyon, hooks onto a line that comes down Provo Canyon, and then comes here to Salt Lake, to the rest of Salt Lake and up here. That was a line that we built but involved three districts—the big district, what we call the big district, Central Utah Water Conservancy District, and then the other two districts, and I'd have to think to get their name correct, so I won't even try right now, but those two districts. And working out repayment agreements on that.

Then we had a blowout on it. A darn section blew out and we had to get that repaired. They were after us saying they shouldn't have to pay for that. We were saying, "Well, we have no authority to spend money on something like that, other than construction money, which you have to repay." Boy, they took us to task on that.

Storey: But isn't that sort of a normal aspect of a construction project?

Hirschi: Yes, and I'd never ran into anybody anywhere that didn't accept this, except these three wouldn't. They said, "You built a defective line, you fix it at Bureau of Reclamation expense." Well, we don't have money other than your money—your money, so to speak—you're going to repay all the bills. Never could convince them of that. We had some real difficult struggles with that. Well, we just billed them for it. But that was all resolved because the Bureau then offered some buyouts. You know those buyouts?

Storey: Yes.

### **Districts Buying Out Loans**

Hirschi: You can buy out the loan for a discount.

Storey: Oh, no, I didn't. Tell me more about this.

Hirschi: Yes. The Bureau of Reclamation headquarters, and even the federal government's talking about doing that or are doing that now, and that is if you have a loan—okay, let's take the Central Utah Water Conservancy District and these other two districts had to pay the costs of this Jordan Aqueduct. I'll just use this as an example. Central Utah Water Conservancy District and these other two districts had to pay the costs of the

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Jordan Aqueduct. I don't know what it cost, but let's just say 50 million for talking purposes. They had to pay that over the life, which was probably thirty years, I don't know, twenty-five- thirty years, whatever. Twenty to thirty years. All right. Let's say it was 50 million just for talking purposes. Probably wasn't that much. All right. You're going to pay that to us over, say, twenty years, and we'll get our 50 million back, because there's no interest.

Storey: There's no interest because it's a Reclamation project.

Hirschi: Right. If you give us 40 million today, you were paid in full. That was the discount. A lot of that was done in Reclamation here in, oh, about starting probably in '90 to '93, in there. Quite a bit of that was done. Now, they brought this out after I retired. I think I read it in the paper where they just done that. They bought it out here, I think this year or last year.

Storey: The idea is that because you're getting the money up front instead of over a long period of time with no interest, that you come out better getting it up front.

Hirschi: Right. An that's true, providing you get the proper discount. You don't go to they pay you 20 million. I mean, it's got to be the right fee. It's based on—just take the interest rate. I don't know totally how they do it, but it's based, I think, on the interest rate that's going now. I don't know exactly how they do it, but it's . . .

Storey: It's something the finance people figure.

Hirschi: You never know which party if going to come out the best had it not been done that way. You don't know that. They have a mechanism in finance how they do it, and they do it, and it's done. Had it not been done, maybe the other party would have come out better. Who knows. But it's a discount. And the federal government's talking about doing that a lot, on all the power facilities and that.

So anyway, that was resolved. I don't know about the discount, but I believe that in the legislation that authorized the district to finish the construction, I believe the amount of the repair cost, which was several million, was put in there as a nonreimbursable. I think they got that written right in it, that the cost of repairing the Jordan Aqueduct of X million became nonreimbursable. I think that was in the bill.

Storey: So Congress has to approve buyouts?

Hirschi: No, I think that a secretarial decision.

Storey: So where was it that Congress put in that it wasn't a reimbursable cost.



Hirschi: Okay. There was a bill that the big district sponsored that was called—I don't know the name of it. I don't remember the name of the bill, but what it did was it set itself up, for all intents and purposes, as a Reclamation office—the district.<sup>30</sup> For all intents and purposes, when you get through all the wordage and that, it became a Reclamation office that reported directly to the Secretary of the Interior.

Storey: For the completion of C-U-P.

Hirschi: For the completion of the Central Utah Project.

Storey: And part of that was, these repairs are not reimbursable.

Hirschi: But there were a lot of other bennies in there, and that is—I'm going from memory, but I think the reimbursement for the break on the aqueduct was in there as a nonreimbursable, and it allowed other things, too, as I recall. Well, it had a lot of things relative to mitigation. It took the position that Reclamation had not mitigated properly, and hence there needed to be another 200-, 300 million of mitigation to catch up. Now, where they got that from I don't know, because everything we did was approved by the agencies we worked with, like the Fish and Wildlife Service primarily. So whoever came up with that, I don't know. But that was part of the bill, and they could do things outside of the regular Central Utah Project, like developing lands around the Great Salt Lake, and there were really a lot of things in there that really were not related specifically as Central Utah Project. It went well beyond.

Storey: I think you need to catch a bus, don't you?

Hirschi: Probably ought to quit.

Storey: Okay. Let me ask whether you're willing for information on these cassettes and the resulting transcripts to be used by researchers.

Hirschi: I don't suppose it'd be a problem.

Storey: I take it that's a yes?

Hirschi: Yes. I haven't said anything derogatory about anybody, have I?

Storey: No, I don't think so. Thank you very much.

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30. Referring to the Central Utah Project Completion Act which is comprised of Titles II through VI, Sections 200-600, of the Reclamation Projects Authorization and Adjustment Act of October 30, 1992 (106 Stat. 4600; P.L. 102-575).

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END SIDE 1, TAPE 3. AUGUST 12, 1996.  
BEGIN SIDE 1, TAPE 1. AUGUST 15, 1996.

Storey: This is Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing "Wes" Weston Hirschi, on August 15, 1996, at about 1:30 in the afternoon. This is tape one.

Yesterday you had mentioned a number of construction offices, project offices, where work was going on.

### **Upper Colorado Region Construction Activities**

Hirschi: I think what initially you asked was the adjustment I had to make from being Regional Engineer to Assistant Director. Of course, I talked in terms of the time I moved up, because later we hired another assistant, Rick Gold,<sup>31</sup> but at the time I was only taking about me and Frank Nell and Cliff. Then we started talking about some of the offices, and I think that's about as far as we got.

Storey: You mentioned before we started the tape that you had only mentioned a few of the offices. You'd mentioned Provo and Durango and Cortez and Montrose, I think.

Hirschi: You mean not on the tape?

Storey: And there were a number of other offices that you hadn't mentioned on tape?

Hirschi: Oh, yes.

Storey: What were they? Do you remember now?

Hirschi: Are we on now?

Storey: Yes.

Hirschi: Oh, we're on now. Okay. We had an office at—well, I'll include the Southwest Region.

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31. Rick Gold served as Upper Colorado Region Assistant Regional Director from 1990 to 2000 and was later named Regional Director from 2000 to 2007. Mr. Gold also participated in Reclamation's oral history program. See Rick Gold, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in Salt Lake City, Utah and Denver, Colorado, edited by Brit Allan Storey, further edited and desktop published by Andrew H. Gahan, 2014, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

When the Southwest Region closed, that was probably around '89, '90, I guess.<sup>32</sup>

Storey: Maybe '87, '88?

Hirschi: Okay. We took over in this region, all of the operating offices, and then the Upper Missouri Region took on some of the planning functions. So that includes other offices. So I think the ones I missed in the old Upper Colorado was we had an office at Farmington, Navajo Irrigation Project,<sup>33</sup> and at Page, over Glen Canyon, the dams above Glen on the Colorado [River]. I think I mentioned the others, no—we had an office at Montrose—we may have mentioned that—for construction of Ridgeway Dam.<sup>34</sup> I think I mentioned the one at Dolores and Grand Junction and Durango and Provo.

Then in the Southwest, the portion of the Southwest we took over, we had offices at Albuquerque, El Paso, Carlsbad, Alamosa. I believe that's most of them. Some of those were construction offices and some were O&M [operations and maintenance] offices and planning offices. I said at one time—of course, that was after Frank Knell had left and Ed Fowler [phonetic] took his place over at administration and before we hired the second [Assistant] Regional Director for programs, Rick Gold, I had at times about sixteen people that reported direct to me on kind of a day-to-day working basis, but they would also interface with Cliff as needed, along with the administrative side.

So between the two of us, we had a heavy load. These field engineers would call Cliff on certain things, or they would call me on certain things. Cliff and I developed this system, and they became very aware of where to go for information. So we developed a good system between Cliff and I, and the field people pretty well understood the system of how to operate. I dealt more with the technical aspects of getting something built or planning something or O&M, and he dealt with everything else. A lot of political matters in the region. I mean, he could be overwhelmed with just the political side of it. Then, of course, he had to deal with a lot of personnel matters, too, that I never got involved in unless he asked me.

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32. Created in 1943, the Southwest Region was headquartered in Amarillo, Texas, covered Texas, New Mexico, Oklahoma, southern Kansas, and the San Luis Valley in Colorado. In 1988 as part of a reorganization, the Bureau of Reclamation closed the Region and its area was split between Great Plains Region in Billings, Montana, and the Upper Colorado Region in Salt Lake City, Utah.

33. Authorized in 1962, the Navajo Indian Irrigation Project provides irrigation water to the Navajo Indian Reservation in northwestern New Mexico. For more information, see Leah Glaser, "Navajo Indian Irrigation Project," Denver: Bureau of Reclamation History Program, 1998, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

34. Constructed in 1987, Ridgeway Dam is a feature of the Dallas Creek Project that supplies irrigation and municipal and industrial water from the Uncompahgre River in Colorado. For more information, see Wm. Joe Simonds, "Dallas Creek Project," Denver: Bureau of Reclamation History Program, 1999, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

So those were the offices, and we had a big construction program. Now, we didn't spend as much money as Lower Colorado did on their Central Arizona Project, but it was much more diverse, whereas their program, which I helped to lay out, was water from here to there and you build canals and pumping plants to get it there. Ours a very diverse program, which I could get into.

### Diverse Programs

Storey: Please.

Hirschi: Please? Well, okay. For instance, at the Provo Office, it was all encompassing: planning, operation, maintenance, and construction. By the way, there were two offices there. That's right. We set up two offices.

Storey: In Provo?

Hirschi: In Provo. That's right. Originally one when I came here, but we split it and made a construction office in Provo to handle the construction on the Central Utah Project. That was John Larson initially. So John Larson's office was responsible for construction on the Central Utah Project,<sup>35</sup> the Bonneville being the biggest unit, of course. Of course, that Central Utah extended all the way from Uinta Basin clear on down to below Nephi and served water into central Utah. That was the intent.

Jordanelle Dam<sup>36</sup> was one of the key features of that, especially for the irrigation part. That's the last dam that we had built in Reclamation, and may be the last one for many, many years, on the Provo River. Then Curt Carpenter [phonetic] had everything else on the planning and operation as it related to not only the Central Utah Project, but for other projects that had been completed by Reclamation in Utah and Wyoming and parts of Colorado, I believe. So that was just those two offices.

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35. The Central Utah Project (CUP) provides the state of Utah to utilize a sizable portion of its Colorado River allocation. The project was divided into six units: Vernal, Bonneville, Jensen, Upalco, Unitah, and Ute Indian Units. "Situated entirely within the Uintah Basin are the Jensen, Vernal, Upalco, and Uintah Units. They will develop water for irrigation of both Indian and nonIndian lands and for municipal and industrial use in Duchesne and Uintah Counties. The Bonneville Unit involves water collection and distribution in both the Uintah Basin and the Bonneville Basin."

36. "Jordanelle Dam and Reservoir, located on the Provo River about 6 miles north of Heber City, provides water storage at an upstream site by exchange for Bonneville Unit water in Utah Lake and Strawberry Reservoir and for most of the water presently regulated in 15 small reservoirs on the headwaters of the Provo River. The reservoir functions as a long term holdover reservoir to provide storage through a six year drought period. Jordanelle has a capacity of 320,300 acre-feet with a surface area of 3,068 acres. The municipal and industrial water stored in Jordanelle Reservoir is delivered to Salt Lake County by way of the Provo River and Jordan Aqueduct, and to northern Utah County by way of the Provo River and Alpine Aqueduct. See "Jordanelle Dam," [http://www.usbr.gov/projects/Facility.jsp?fac\\_Name=Jordanelle+Dam](http://www.usbr.gov/projects/Facility.jsp?fac_Name=Jordanelle+Dam)

Then in Grand Junction, it was mainly operation, maintenance, and planning, but we did have some construction that was handled out of that, mainly on the salinity program on the Colorado. Then going down to Montrose, that office was set up to handle construction of Ridgeway Dam on the—oh, what river? Ridgeway Dam. It was a dam only.

Storey: I don't know which river that is.

Hirschi: The Gunnison [Uncompahgre River]. Then we had the project at Cortez to handle the construction of the Dolores Project.<sup>37</sup> It was about 700 million project, which was a small Bonneville unit, dam and canals, pipelines, and etc., for the area of Cortez and the Indians, too. Then we had the office at—and I guess that really came to us as part of the Southwest Region—Navajo [Indian] Irrigation Project located at Farmington to build the Navajo Irrigation Project construction.

Then we had an office at Page to handle the operation and maintenance of the mainstem dams down to Glen. Then we had the office at Albuquerque, which was handling operation and maintenance mostly, some planning. Then the office at El Paso, which handled operation and maintenance. Then the office at Carlsbad was constructing the Brantley Dam<sup>38</sup> for mainly flood control.

Then the office at Alamosa, Colorado, which was constructing the Closed Basin Unit,<sup>39</sup> a water-salvage program, really, from wells and pumping it into the Rio

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37. The Dolores Project, located in the Dolores and San Juan River Basins in southwestern Colorado, uses water from the Dolores River for irrigation, municipal and industrial use, recreation, fish and wildlife, and production of hydroelectric power. For more information, see Garrit Voggeser, "The Dolores Project," Denver: Bureau of Reclamation History Program, 2001, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

38. A component of the Carlsbad Project in New Mexico, Brantley Dam is comprised of several dams. The main dam is a concrete gravity section 730 feet long and 143.5 feet high above the streambed with a roadway elevation at 3,308.5 feet above mean sea level. The main dam contains the outlet works and the spillway. For more information, see Steve Bogener, "Carlsbad Project," Denver: Bureau of Reclamation History Program, 1993, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

39. "In 1972, Congress authorized construction of the Closed Basin Project which spans 195 square miles of the sump of the closed basin from east of Alamosa to four miles south of Moffat. The purpose of the project is to salvage unconfined groundwater from the sump area that historically was lost to evaporation and evapotranspiration.

"The value of the Closed Basin Project to the San Luis Valley is simple. It helps Colorado to meet commitments to New Mexico and Texas under the Rio Grande Compact of 1939. For every acre-foot of water produced by the Closed Basin Project, irrigators in the San Luis Valley get to keep an acre-foot of water for irrigation. Because Colorado receives credit for Closed Basin Project water, less curtailment is required for irrigators who have water rights on the Rio Grande or Conejos rivers.

"The water has also helped the United States meet its commitment under a 1906 treaty with Mexico. Lawsuits have been filed against the United States and the state of Colorado in the past over downstream water shortages." See

(continued...)

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Grande for additional water supply. Then that construction engineer also had the Velarde Community Ditch Program, which was a non-reimbursable program in New Mexico to rehabilitate some irrigation facilities that were quite old.

Storey: At Velarde, New Mexico?

Hirschi: Yes, I guess so. It was called the Velarde Community Ditch Program, so I guess it was near Velarde, yes. I think I've covered most of them.

Storey: What about Grand Junction?

Hirschi: Grand Junction? Yes, it was there. I thought I covered it.

Storey: You may have.

Hirschi: Operation and maintenance and planning, and construction, too for the salinity program for the Colorado.

Storey: You came up in '82?

Hirschi: '82. October of '82.

Storey: Was that just in time for the big water years of '82 and '83, or had it already started?

### **Spillway Problem at Glen Canyon Dam**

Hirschi: No. That was the time that it just started. That was the year, in '83, I believe it was, when we had the spillway problem at Glen Canyon Dam because of the flooding, and the forecast was missed by various and sundry agencies. Hence the runoff was far, far, far greater than we ever, ever anticipated. So the water started coming up in Glen Canyon, we started releasing as fast as we could out of the outlet works and the needle valves. That wouldn't cut it. So we ended on slapping some temporary flash boards to raise the capacity. Then we decided those are not going to hold, so we went in and put in some permanent flash boards.

Water still kept coming up, so we decided to open the spillways, which we didn't want to do because we knew—I didn't know it when it come up, but I soon learned that the Bureau of Reclamation had had rehabilitation of those tunnels on its program for many years, but kept getting deferred, deferred, deferred, and they knew that they

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39. (...continued)

Rio Grande Watershed Conservation and Education Initiative, "The Closed Basin Project," <http://rgwcei.org/16-news/79-ken-beck.html>. (Access 2/2016).

wouldn't hold long if they had to be used. That proved to be the case, because we had to use them. We used principally the one on the east side, and you can't imagine the damage it done to that. It would take hours and hours and hours to cover the intensity of our discussions of what to do next to make sure the abutment on that east side because it was close to the spillway. The abutment wasn't damaged.

Well, as luck would have it, I suppose, Mother Nature didn't downpour, so everything stabilized and we were able to turn off the spillway and we went to an emergency repair program. We just called Morrison-Knudsen and said, "We need you. Go to work," on a cost-plus program. While the original estimate was something like ten, it ended more like thirty-three million to fix that, I mean to go into that after we opened it up and to go in there and see those mammoth caverns, just like going in a cavern. It was scary to see what had happened. So I got in on that.

### **Fontenelle Dam Problems**

Then I also got in on Fontenelle Dam that nearly failed, failed once then almost failed on us a second time. That became an emergency problem, too.

Storey: Tell me about it.

Hirschi: Well, Fontenelle Dam,<sup>40</sup> after it was built way back when, I don't know, in the fifties or sixties or when, but right after they started filling it, they had a loss of embankment on, I think it was the west side. They were able to get in there with bulldozers and whatnot, and stop it off. It was probably a lucky shot, but it was accomplished. They tried the same thing on Teton and it didn't work. So that portion on the west abutment was rebuilt.

But Fontenelle had its problems from day one and it was constantly monitored, and it kept degrading and degrading and leaking more and leaking more and leaking more. We were going through a period of very extensive studies—we, and Denver, you know—on what we ought to do with it. Well, lo and behold, all of a sudden the darn thing started leaking very extensively to the point where we got fearful it might fail, so we started dumping water out the spillway down Green River. Of course, over the years, the flood channel had been encroached upon, so it didn't carry near as much as it much did. So the waters were getting pretty high in the town downstream the Green River.

Anyway, we managed to get it drained, but, oh, talk about the public relations

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40. Constructed in 1964, Fontenelle Dam is a primary feature of the Seedskaadee Project in southwestern Wyoming. For more information, see Toni Rae Linenberger, "Seedskaadee Project," Denver: Bureau of Reclamation History Program, 1997, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

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problems we had over that Green River and what ought to be done to fix it, and assurances that this time that it would work after we repaired it. It was just a tremendous undertaking, just mind-boggling what we had to go through.

Storey: What did we do to repair it?

### **Repairs on Fontenelle Dam**

Hirschi: We came in and used a new technology that was used in European dams, and that is excavate I think about a three-foot-wide pathway through the center of the dam, all the way from abutment to abutment and clear down into bedrock in the bed of the river and filling it with aggregate.

Storey: With rocks?

Hirschi: Concrete.

Storey: Concrete aggregate.

Hirschi: Uh-huh. That's what we done. It worked well. We used that same system on the east abutment on Navajo Dam, too.

Storey: Wouldn't that be dangerous to excavate such a narrow thing so deep?

Hirschi: No, see, because the reservoir was empty and that dam is compact so heavily that you just have vertical walls.

Storey: They wouldn't cave in on you?

Hirschi: No. I'm trying to rethink now how that was done. I'm trying to recollect now, but not to waste a lot of time. I'm confident it wasn't excavated from one end to the other. It was done like you'd start on one abutment and move in sections. That was it, sections, vertical sections maybe twenty, thirty feet long, and move across. I think that was the technology.

Storey: What about Glen Canyon? Did we ever fear we were going to lose it?

### **Concerns about Losing Glen Canyon Dam**

Hirschi: Yes. We were very, very concerned that Mother Nature had us in a position where it could have done some devastation. If we had had a tremendous rain in the headworks in the Colorado—I don't know. We did save the west abutment in case. We used it very



sparingly. That's why we focused on using the right. It was the closest to the abutment, so we didn't use it at maximum capacity. We used it at a capacity we thought would be safe, and we kept the west one just in case Mother Nature didn't treat us kindly by dumping on rain. This was in the spring, but we still had snow pack. So if you'd have dumped a big rainstorm, it would have really come out. So that was our safety valve. So we had considerable comfort that in the end, if we had to, we could use that spillway. So we thought we could get through it, but nevertheless, it made you awfully nervous to be in that position, because Mother Nature was in control. Of course, Mother Nature always is in control. That's a position that we never thought we'd find ourselves in.

Of course, when the project manager down there started reporting chunks of sandstone coming out of that spillway, then we had to throttle down, but we had space above—we weren't running clear up on our emergency flash boards, either. We were saving some space there. But, yes, that's what happened. See, that's in sandstone abutments there, and, yes, it was spewing out sandstone color and chunks of sandstone. So at that point, we knew it had cut through the lining of the spillway and had gone into the sandstone. Of course, that was making the designers very nervous because they didn't know which direction it was cutting. Was it cutting towards the abutment or which way? Well, as it turned out when we got in there, it had just cut a bigger channel and it hadn't really gone towards the abutment.

Storey: Hadn't moved.

Hirschi: It hadn't moved towards the abutment that much, just made a great big hole in there. Jim Brown and I had a lot of discussions way late in the night about strategy, you know, not knowing what was going to happen as far as rain and snow. We had to do whatever we could to keep a safety guard in there.

Storey: Who's responsible? Was it the project office at Page?

Hirschi: For what?

Storey: For how they operate the dam.

### **Glen Canyon Emergency Responsibility Rested with the Region and Denver**

Hirschi: No. That was a decision that was made between regional office and Denver. We gave the directions to Tom Gamble. Now, of course, he gave us input, but the people who had the expertise on what to expect on flows into Glen Canyon rested in this office plus the Weather Service office here in Salt Lake. So they were the ones that would say,

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"Well, the magnitude of flows coming in are not going to taper off," or, "They might go up." They would give that information, then Denver would provide the input relative to the design considerations and stability considerations based on what was actually happening in the spillway. Of course, the readings on all of the piezometer instrumentation of the dam they were watching closely. I'll tell you, there was no turf protection during that episode. You had togetherness working together, I can assure you. Really. This office, Denver, and Tom Gamble's office, we worked together as a team. There was no time for pride or anything. (laughter)

Storey: Tom Gamble was at Page?

Hirschi: Yes.

Storey: Where would the responsibility normally lie for the way Glen Canyon was operated?

Hirschi: From a standpoint of just operational?

Storey: Yes, how much water goes through the outlet works and all that kind of stuff.

Hirschi: That was all pretty much set forth in guidelines from this office. It's really linked to the Lower Colorado. It's tied. Lake Powell is tied to Lake Mead on levels and amount of releases and this sort of thing. So it's really a coordinated effort between the Lower Colorado Regional Office and this regional office, as it pertains to that.

Tom Gamble mainly was in charge of carrying out the operation, when to turn on this generator, that generator, and all the maintenance. In other words, he carried out the plan, but he didn't have the resources down there, and rightfully so, to say—he knew precisely how much water he had to release at a given time. Of course, maximize generation capacity by turning all the water through the generators, not the bypass works.

Storey: Not through the outlet works.

Hirschi: Right. Not through the outlet works.

Storey: Unless you had to.

Hirschi: Give it to the generators. So that's how it operated. In essence, Lake Mead at Hoover is operated the same way.

Storey: You went down into the spillway.

### Repairing the Spillway

Hirschi: Yes. We put in a big access tunnel so we could get heavy equipment in perpendicular to it. Both of them, both tunnels, because both had damage.

Storey: What was it like?

Hirschi: On the east one, just—oh, gosh, you just go in there and, of course, all of the concrete lining was gone—not the entire reach of the tunnel. The tunnel from the inlet works came down on, I don't know, maybe forty-degree slope, say about not quite half way, I would say, and then went level, more or less, the rest of the way out. It was right there at the transition, pretty much, between the—I'm using forty degree—but whatever it was.

Storey: What I might call elbow.

Hirschi: Elbow, is where the damage really—and understandably, really started and just undermined right there. Then of course, just started peeling out the lining of the tunnel on downstream. So you just had tremendous holes and caverns and I can't even imagine—I don't know how big those were. It's hard to say. I don't remember the measurements on it, but I would be surprised if somewhere between fifty and a hundred-feet big in some of those places. I don't know, it was mammoth destruction, more so than anyone ever dreamed. The Denver designers were just beside themselves on what had happened. That was a lesson learned. Those spillways should have been repaired.

The thing is, it wasn't just Glen Canyon. Hoover was a similar design. In fact, all the designs on Hoover, Glen Canyon, and the upstreams, Flaming Gorge, and others on the mainstem below Fontenelle, but, say, from Flaming Gorge on down to Mead were similar designs. They had run tests on Mead and knew that there was a potential cavitation if they ever had to use the spillways. But, see, the thing that was driving programs in those days was planning and building new facilities. There was a tendency to, "Well, we don't need this this year. We can get by by delaying the spillway repair this year and this year." So it was done. Well, after the experience with Glen Canyon, guess what?

Storey: It became a priority again.

### Evaluating Spillways at Other Dams

Hirschi: Boy, did it become a priority at Hoover, at Flaming Gorge, and one other here I can't think of.

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Storey: Was it Yellowtail?

Hirschi: No. On the mainstem of the Colorado here. Which one was it? Gosh, getting old, I guess.

Storey: Welcome to the club.

Hirschi: We did three of them, Flaming Gorge and one other below it and Glen. Then Lower Colorado done Hoover. I don't know whether they did anything downstream.

Storey: So were the spillways then redesigned?

Hirschi: Yes, and mainly all they had to do was put in an air slot in them.

Storey: So that the cavitation couldn't quite take place.

Hirschi: Right.

Storey: As I understand it, cavitation is sort of a suction thing.

Hirschi: Yes, and it plucks out the concrete particles, and it'll just in time wipe out your concrete lining. So what you do, and Denver came up with a very clever way of doing it, and that is, go upstream from a certain designed location from where that damage would occur and cut an air slot in the bottom of your spillway, and the air slot—I don't know—it seemed like it was something like five feet wide and down through the concrete lining depth and across the bottom of the spillway and, I think, up the sides a little bit. What that did is allow air to get in under the water flow, so that when it got down to the place where you'd have cavitation, it was cavitating on air instead of the concrete. We ran tests on our spillways at Glen afterwards, and it worked beautifully. So that design, then, was used in the others, and not very costly if you done it before you had the problem, like at Glen, pretty simple. I don't know whether that was used elsewhere at the Bureau, but I'm sure as a result of Glen, they looked at all of the Bureau dams. I'm sure they did.

Storey: Checked them out, sure.

Hirschi: Checked them out.

Storey: Couldn't have a failure like that. That would just be—

Hirschi: Oh, that would just be devastating. No, we had a lot of confidence that we could weather the storm.

END SIDE 1, TAPE 1. AUGUST 15, 1996.

BEGIN SIDE 2, TAPE 1. AUGUST 15, 1996.

Hirschi: Nonetheless, you found yourself in a position that you didn't have a lot of control over things, and it made you nervous. Jim Brown and I talked a lot of nights, evenings, about, "Okay, where are we?"

Storey: Who was Jim Brown?

Hirschi: Jim Brown was the Chief of the Design Division in Denver. He and I worked closely together and had a very good working relationship. Jim was very good.

Storey: But then once the situation was over, all of a sudden you had a need for 33 million dollars.

### **Funding the Repair Work**

Hirschi: Well, we thought only ten, because we called in—and I think it was Morrison-Knudsen—we called them in—well, first, we had to get flash boards on. We put on wooden flash boards initially, right quick, but they were only four feet high, I think, and weren't very strong. We could see that that wasn't going to do it. So we got an emergency contract with a supplier out of Provo, I think it was, to supply metal flash boards, and Denver came out with a quick design so that it could be easily fastened once we got them to the dam. Man, that was a crash program, I think about a week, no more than two, to get those in place.

Then, of course, M-K [Morrison-Knudsen], we had to get this thing going because we knew it would be a crash program to get it done before next year's runoff. So, like I say, we just went with, I think, M-K, and the contracting office here just decided that, "Hey, there's none better. We'll do it on a cost-plus basis with a fixed fee," of course, which later became challenged, and put them to work. It was a crash program, but we got the job done, barely. (laughter) Barely in time for the next year.

Storey: What kind of issues came up with getting that kind of money quickly?

Hirschi: Initially, we started with an estimate. I think they gave us something like 10 million, but it was totally underestimated as to how much it was going to cost. Well, that gets into the revenue stream that's tied to the CRSP [Colorado River Storage Project] programs. There's a certain revenue stream that comes off of the Colorado River Storage Project.

Storey: From the power generation?

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Hirschi: From the power generation. So we worked closely with Western Area Power Authority, of course, who used to be part of Reclamation until they split it off, here locally to come up with the money. So there was a way to get the money under that program. We didn't have to go to Congress and get quick reimbursement.

Storey: We didn't have to transfer money within Reclamation?

Hirschi: We may have moved it around. I don't remember precisely how it was done, but that's the program it came from.

Storey: Why would power be paying for spillway work? I'm not following this.

### **CRSP Funding**

Hirschi: That program, the revenues from the power facilities went to pay the construction costs plus operation and maintenance. Like I say, before Western Area Power Administration, we had everything in Reclamation, and you just used the money that came off of the revenues to pay for original construction costs and then ongoing operation and maintenance. So that's what those revenues are for, and also to pay off not only the dams, but the features that are authorized as part of the legislation. I'm not an expert on this, but the revenues can flow beyond just the dams in payment of features of the project.

Storey: So Western and Reclamation somehow had this revenue money that could be used.

Hirschi: Right.

Storey: What about, though, for construction projects, like Dolores and like Ridgeway and so on? Did we have trouble getting money during those years?

### **Funding Regional Construction Projects**

Hirschi: When I came in '82, covering since '82—they had trouble getting money for Bonneville before '82, but from '82 on—and I'm not suggesting I had anything to do with it—but just covering that period of time, we were fairly successful in getting money for our construction programs. Not as much as we would have liked, but on the other hand, sufficient to make good progress. Of course, each regional office was fighting for money for their own programs, so there was a lot of in-fighting in Reclamation as who should get the biggest piece of the pie. Like if the Department said, "The whole Reclamation program gets a billion. You guys decide where it goes," kind of, so there was a lot of in-fighting, so to speak, or negotiations.

But we were able to fund Bonneville to a satisfactory level. We could have used a lot more. Dolores Project moved fairly well. The Alamosa Project moved very well on construction. Velarde Community Ditch moved very well. So, by and large, we done pretty well. I'm hastening to say we could have spent more money and spent it wisely had we had it. But we did have a big construction program, so we handled about all we could handle with the people we had, really.

Storey: You would have had to have more staff?

Hirschi: Probably.

Storey: That's always a problem.

Hirschi: That's a problem, too.

Storey: They'll give you money, but no staff.

Hirschi: Yes. You'd go through those cycles where they'd say, "Okay." One year they wouldn't worry about staffing, they'd just contain the amount of money you got, which in essence controls your staffing. Then they'd flop, "Well, you can have this many full-time equivalencies," plenty of them, but no money.

Storey: Or lots of money and no staff.

Hirschi: Right. That's what I was meaning to say.

Storey: You mentioned Monday, when we talked, the problem with construction of the Central Utah Project. After you got up here and started moving into it, I gather that relations between Reclamation and the water users began to become more tense.

### **Tensions with Water Users on Central Utah Project**

Hirschi: Well, I don't know if it happened about that time. It's something that had been building up, I think, over the years, and that is that construction on the Central Utah Project had not proceeded as quickly as a lot of people, including the districts, would have liked. There's a lot of reasons why it didn't move on a quick construction schedule, which would take a lot of time to discuss. It wasn't all Reclamation's fault, because you had NEPA [National Environmental Protection Act] come to bear in, what, 1969, and then funding. And then working out agreements with the Forest Service, because a lot of our programs are on Forest Service lands, on mitigation. Then they got a mole stuck in one of the tunnels. The moles that are used to excavate the tunnels, they got one of those stuck and that caused a lot of delay and concerns and expense.

Storey: On the Central Utah Project?

Hirschi: Yes. It was actually on the Bonneville part.

Storey: Would that be a contractor responsibility or a Reclamation responsibility?

Hirschi: Well, it gets into the argument whether or not the Bureau of Reclamation provided the contractor with adequate information prior to the bid. So that got into an argument.

Storey: I understand what you're saying.

Hirschi: That was all resolved through negotiations. But anyway, I think what was happening over time was that the districts were becoming a little more concerned about the success that was being made, and speaking out a little more vocal. That's when they were, I think, kind of getting after Bill Plummer.<sup>41</sup> You know, "Come on, let's get things going here."

Well, anyway, so then here I arrive, and as I mentioned, I explained what we did on Central Arizona Project to get it going, so I thought, "Why not try it up here?" So I started talking to Cliff and to Don Christianson [phonetic], who was the manager of the big district, and to others about how to do it based on experience we had in Lower Colorado, but it didn't quite turn out as well as it did down there.

We really never got together. I'm not saying we were fighting and at odds all the time, I'm just saying that we weren't quite as united as I would have liked to have seen. When I mean united, I'm talking about everybody that had an interest in getting it built, and that included all the districts involved and there were several of them, the Bureau of Reclamation and the congressional people, both senators and congressmen, because it takes everybody to get it going. It takes congressmen and senators to get your money, so to speak. So we didn't have as much togetherness as I had hoped.

### **Issues Arose Over Jordanelle Dam Site**

Then, of course, there was a lot of controversy that developed around Jordanelle Dam site. Jordanelle being the keystone of the Bonneville Unit. We had one geologist who worked for the mines up there who felt very strongly that the Bureau was making a mistake in building a dam over what he thought were significant faults. So he started generating some questions on the part of some people as to whether or not the Bureau of Reclamation could build a safe dam at that dam site. So enormous amount of energy was spent. In fact, that dam site was investigated, investigated, investigated far more,

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41. N. W. "Bill" Plummer served as Upper Colorado Regional Director from 1978-1981.



I'm sure, than any other dam site the Bureau has ever investigated or built a dam on.

So that took a lot of time. In the end, had public hearings in which some of the congressmen or all of them participated. We finally got through that and hired under contract three world-renowned experts in dam construction to support the Bureau of Reclamation, or tell us what we were doing wrong. They participated in the dam-site investigations, the designs, the construction, the whole thing. So we built it, and has it been used. Really, recreation and everything.

Storey: That was dedicated about last year?

Hirschi: Yes. I think it was last year, dedication. Of course this year it's filled. Might have been two years ago. This year is filled pretty much, and it's being widely used for recreation, fishing and etc.

Storey: It's an M&I supplier?

Hirschi: It was really designed—see, the Bonneville Unit was designed for both M&I and irrigation, the irrigation system component. So it was really designed for both, but the irrigation system has a lot of challenges, and, I don't know, I doubt it will ever be built in its entirety. There may be part of it that's built, parts of it redesigned and this sort of thing. But it was very costly, but that's in the hands of the district as to what they do with the irrigation component.

Storey: Because the project has been turned over to them, you mean?

Hirschi: Yes.

Storey: We mentioned skull sessions and program sessions the last time we talked.

### **Skull Sessions**

Hirschi: Skull sessions and program. P-M-C meetings, you mean?

Storey: No. Let's see, skull sessions were preparing the Commissioner to testify on the budget.

Hirschi: Correct.

Storey: And program sessions were allocating budget among the various entities in Reclamation. Did you participate in any of those as Assistant Regional Director?

Hirschi: Yes, and, of course, there were different sessions, like the planning offices would have

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a program session on planning, which usually I didn't participate in unless I was Acting Regional Director—officially acting, and Cliff was Acting Commissioner or after he had retired, but I participated in a lot of the Bureau of Reclamation conferences that were held to discuss the programs and the utilization of money on construction, where and how much to this region and how much to that region, and if we had to take a cut over what we had preliminary asked for, where we'd take the cuts. Yes, I was involved in a lot of those.

### Formulating Regional Budgets

Storey: What were they like? Was it everybody went in and said, "Well, this is what we need," and the Commissioner said, "You get this and you get that and you get that." Or was it everybody carried a club in and fought off everybody else? How did it work?

Hirschi: Well, it depended on who was Commissioner, to a large extent. Of course, Bill Klostermeyer<sup>42</sup> was the Assistant Commissioner for Administration, which was pretty much over the budgeting program, so he had his views, and they might be shaped somewhat by who was Commissioner or Acting Commissioner. It would also depend from year to year as who you had as regional directors and where. So it really varied from year to year. Naturally, most regions would come in with their agenda and try to get as much as their program as they could, but on the other hand, they were pretty reasonable meetings. People were pretty reasonable in discussions. Sometimes agreements would be worked out at the time, or if it seemed to be a standoff a little bit, then the Commissioner's Office would say, "Well, we'll take it under advisement," and they'd decide. But I'd have to say, and you may not get the same version from others, but I would have to say that generally speaking, you had reasonable people that were willing to work together reasonably for the good of Reclamation. That's kind of how I saw it.

I remember once when I was Acting Regional Director and Cliff was Acting Commissioner, we had the program conference, and we had to take quite a substantial cut in construction, because the department had said, "You're not going to get it, so you've got to take it." So it was agreed that the regional directors would get together that evening over a little hors d'oeuvres and talk about it. So we got talking about it,

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42. William "Bill" Klostermeyer served as Assistant Commissioner for Administration 1981 to 1988; the title was later changed to Assistant Commissioner for Administration and Liaison in 1989. Mr. Klostermeyer also participated in Reclamation's oral history program. See William C. Klostermeyer, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, and Donald B. Seney, California State University-Sacramento, from 1995 to 1996, in Washington, D.C., edited by Brit Allan Storey and Donald B. Seney, 2006, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

and I can remember Ed Hallenback,<sup>43</sup> I think, was Regional Director of Lower Colorado at the time.

Storey: At Boulder City.

Hirschi: I volunteered to give up some money on Upper Colorado and whatever, and Ed was hanging in a little bit tough. I said, "Now, Ed. You know that I know quite a bit about Central Arizona Project." I said, "Ed, you could give up 5 percent," or whatever I used at the time, "of your construction program and it wouldn't make a dent in what you're doing." (laughter) Well, he had to admit that I was probably right, and so volunteered something like ten million. See they were getting upwards of four hundred million, and your program's not that precise. It can vary depending on the bids you get. It can vary so significantly. So for him to take a 5, 10 percent cut probably wouldn't make that much difference. So anyway, I remember that.

Storey: That's an interesting perspective. I have had several different perspectives over different periods of times on the way the system worked. Were you still here when the Budget Review Committee was created?

#### **Budget Review Committee**

Hirschi: Yes.

Storey: How did that work, from your point of view?

Hirschi: I don't think that worked near as good as the old system. In my view, it didn't, because what they did was they picked one or two from the Commissioner's Office, and one or two from the regions. So it was a committee of maybe four. This committee was supposed to—each region submitted its budget to them, and they'd review it, then they would meet with each region, and then they would go back and make the decisions. Well, I felt that that wasn't the best system and didn't work as good as the old system, because a committee of four was making too many decisions. I'm not being critical of any of the ones that served, but it's pretty hard to go and spend a couple three weeks on the Bureau of Reclamation's total program and have a complete understanding of all of the ramifications such to make wise and prudent decisions on each instance.

So I wasn't very pleased with that procedure, and probably so stated. Some of them would come in with preconceived notion, and they'd try to tell you, "This program is a dog," or, "Why are you doing this?" or, "Why are you doing that?" If you could sit down with them and spend a couple days briefing them, maybe they would understand a

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43. Ed Hallenback was Lower Colorado Regional Director from 1986 to 1991.

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little better why you're doing it.

Storey: But you didn't have that kind of time?

Hirschi: No. That time wasn't taken for that exercise. They'd come in and spend a day with you, of course, laws, if you cover all the programs well, it would probably take a week. It really put too much of a burden, I think, on them. And I talked to some of the individuals who served on those, and there were some that kind of felt the same way, that it's too much responsibility to place on a committee of four, so to speak. To come up with all of the recommendations and how you split the money and what programs you move ahead and what programs you don't.

Storey: Tell me about becoming Acting Regional Director.

### **Becoming Assistant Regional Director**

Hirschi: Well, I really looked forward to it. I always said I was a jack of all trades, master of none, but I'd worked in most of the Bureau of Reclamation's, if not all, functions, and the schooling, of course, gave me a pretty good, well-rounded knowledge of the Bureau of Reclamation. Clint Woods, who was manager at Weber Basin, I worked for him for ten years, always counseled new engineers to get a diversity of experience, because that's what he had done. So he promoted us, moving from—like I started out in planning, but I worked in planning a little bit, and right-of-way, and design, and construction, but he promoted that. So I got a diversity of experience in Weber Basin of Upper Colorado, including construction.

Then when I went to Lower [Colorado], I got even more diversity. The [Colorado River] Front Work and Levee System is a unique program and a very interesting program. Then I got into the environment, then I got back into construction in the design construction area. So I felt when I came up here and when I applied for the jobs that I had pretty well-rounded experience.

Phil Sharp was the Assistant Regional Director up here then, and he and I talked a great deal. He actually, I think, made it known to Cliff and others that he thought I would make a good Assistant Regional Director because of that well-rounded experience. He and I knew each other well and we worked well together, and I respected Sharp and I think he respected me. So I came up here. Like I say, wasn't frightened about having to learn things added and new programs, and learning how to work with the people. As I mentioned before, I knew a lot of them anyway from having served in Upper Colorado before. But it was a great experience. I'd have to say that my years up here with Cliff were probably the choice years.

Storey: Then he was asked to go back and be Acting Commissioner, and you became Acting Regional Director.

Hirschi: Right.

Storey: That's a different role.

Hirschi: Entirely different role.

Storey: Tell me about it.

Hirschi: Cliff said, "I'm on my way," and he says, "I'm going to stay out of your hair as much as I can." And he did. But we'd still talk about key issues, especially the political ramifications. So I moved into his room, and his secretary Pat became my secretary, and we moved ahead. I didn't slow down a bit. I told Cliff, "Well, I'm going to keep moving things." Of course, by then I had a fairly decent feel on to what he wanted to be involved in in the way of decision-making. By then I had a pretty good feel. So I felt pretty comfortable in continuing to push and move the programs, and we did.

It made us one individual short, since I moved in the front office, then there was no assistant there, see, but I did bring in people from the field to act in my stead, and they did help an enormous amount, but we had a tremendous load that was carried by Rick Gold and Wayne Cook and Harold Sirchlet [phonetic]. It was a burden sometimes because of the work load and the demands, but we moved things well, and I think Cliff was pleased with what had happened.

It was during that time that the decision was made—I think it was during that time, might be off on my timetable, the decision—I know I was acting. It was either then or when Cliff was out of the country. He may have been out of the country. He used to go on these—he didn't mention it? These conferences that were held.

Storey: The irrigation conferences for ICOLD [International Commission of Large Dams] and that kind of thing?

Hirschi: Right. He was a member of that. So every year he would leave for—depends. Sometimes he might hook on vacation with it, so he might be gone for three weeks to a month. So it may have been one of those times when I was acting that we made the decision to announce the expediting of Jordanelle Dam by one year, which was a major decision.

Storey: Why would it be a major decision?

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### Expediting the Construction of Jordanelle Dam

Hirschi: Ed Clyde, who is now deceased, but who was an attorney for the district, was one of the great promoters of the Central Utah Project, and great political powers, he and Scott Matheson—Scott Matheson was Governor at the time, and Scott always had an interest in water programs. He took more interest in water programs than any governor I ever saw. Not saying that—

END SIDE 2, TAPE 1. AUGUST 15, 1996.

BEGIN SIDE 1, TAPE 2. AUGUST 15, 1996.

Storey: This is tape two of an interview by Brit Storey with Wes Hirschi on August 15, 1996.

Hirschi: So I think there was probably discussion between Ed Clyde and Scott Matheson about, "You know, we've studied this Jordanelle to death. Let's get on with building it, and the sooner the better." So I had a visit from Ed Clyde one day when I was acting. He came in to talk to me. He says, "Now, you guys are confident that you can build a safe dam there." I said, "We're confident." He says, "Well, why don't we do it?" And I said, "Well, we're working on it. We've got our schedule." He says, "Well, if you're confident you can build a safe dam there, is there any way you can change the schedule to make it sooner?" I said, "I don't know, but we'll look into it."

So to make a long story short, there was discussions between us and the district. I told them right up front, I said, "We'll look at it," but I said, "We're not going to do what was done on Teton [Dam],<sup>44</sup> and that is expedite the program to the point where we could sacrifice quality and safety. I will not be a participant in that." There's long story at Teton, and it was accelerated, and you can talk about the merits of that acceleration.

But anyway, we met with Denver and we decided that, "Yeah, we can do it. It might cost us a little more money. It might cost us a little more money, but we can do it." And this is how we done it, and bear in mind now, we had, like I said, these are three world-renowned experts with us just to make sure we didn't stub our toe, because we did not want to build an unsafe dam at Jordanelle. So what we decided was that, okay, normally the Bureau of Reclamation relocates the road that's in the dam-site area if it exists, first. That usually takes at least a year.

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44. Teton Dam was planned as the major feature of the Teton Basin Project in eastern Idaho. On June 5, 1976, shortly after construction was completed, the dam suffered a catastrophic failure, causing over billion dollars worth of property damage and 11 casualties. For more information, see Andrew H. Gahan and William D. Rowley, *The Bureau of Reclamation: From Developing to Managing Water, 1945-2000*, Volume 2 (Denver: Bureau of Reclamation, United States Department of the Interior, 2012), 820-832.

Denver says, "We would like to look at the west abutment of Jordanelle first because we need more data to make sure that what we think is there is there." They said, "We could let a contract on that abutment and not disturb the road." Okay. So we did, but in the end we also included some additional explorations on both abutments. Then it was decided later to process the material that we were excavating, so we built a conveyance system over the highway to move it from one abutment to the other, and we chopped off a year and we did not sacrifice quality whatsoever. So the completion of the dam was moved up one year as a result of that. It's unfortunate that both Ed Clyde and Scott Matheson were deceased before that dam was complete. That was one of the saddest things that occurred.

Storey: Because they were both such big supporters.

Hirschi: They were both such great supporters of Reclamation programs.

Storey: What else happened that stands out while you were Acting Regional Director?

### **Other Issues as Acting Regional Director**

Hirschi: Well, let's see. Let me think a minute. The Safety of Dams Program got to be one that demanded quite a lot of public relations. Maybe I could talk about the public relations a little bit. We hired Barry Wirth, who had worked with the Forest Service for a number of years. He came to us, of course, with only a very broad understanding of Bureau functions. So he and I spent a lot of time together, and he's been appreciative of that over time because he got a good feel for how engineers think and how we do things. But he turned out to be one of the best Public Affairs people you could find. We were so pleased that he developed the way he did. So he became a major player in our interface with the public on controversial issues like Jordanelle, where there were some saying, "Don't build a dam there. It'll fail."

While I'm on Jordanelle again, let me just divert for a minute, that we built into that dam many safeguards. It was a new design that the Bureau used. For all intents and purposes, I call it a rock-fill dam because it's a massive rock-filled construction with a narrow clay core in the middle. It was designed such that if an earthquake of 7.5 occurred right under it, which is considered the maximum Utah would ever experience, right under the dam, it wouldn't fail. But also if it shifted a little bit and moved, even if you cracked the clay core and you had leakage, this massive rock-fill downstream would not fail. All it would do is leak some. So that, to me, is a real safe dam.

### **Managing Public Relations**

Now back to public relations. So Barry played a major role and he worked a lot with

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me dealing with the controversy on Jordanelle Dam, dealing on the controversy on Fontenelle Dam, one of the Safety of Dams Program that I mentioned, and Navajo Dam. Let's see. There were many other occasions, but it was quite a challenge to us to be honest and forthright with the public. That's one thing that Barry said to us, "My advice to you guys is to be clean with the public. Don't try to hide things."

I've noticed since I've been retired, how agencies come out and handle certain things and you sit there thinking, "Now, are they really telling the whole story?" So we did try to attack right up front. If you've got an issue, don't run and hide for a week and think about it. Attack it right up front, the sooner the better.

### **Upper Stillwater Dam**

Let me give you an example. We built Upper Stillwater Dam,<sup>45</sup> and it so happens that's in a basin of red sand. And guess what? When we filled it, the color of the water, some people describe it, it looked like blood. I mean, it was red. And lo and behold, I flew out in the helicopter and looked at it and I looked down and I couldn't believe it. All you could see was red water down there, and out of the outlet works was going red water.

Environmentalists were screaming that we were destroying the fish and the environment downstream and we had to do something about it. Oh, I'll tell you, was that a public media event. But we attacked it right up front. We said, "Yeah, it is red, and we didn't expect it to be red. We've never had this happen in the Bureau before. We've got to do something about it. No question."

And we moved swiftly on an emergency basis to decided what to do. And we finally decided that if we were going to solve this problem quickly, we had to some construction. We knew that over time the redness would disappear, but we didn't know how many years it was going to take. We felt like, from a public standpoint, we just had to do something. So we drained the reservoir and went in and capped with cement grout big mounds of sand that had been processed as part of the roller cement.

That was a roller cement dam that was built. It was sand and cement aggregate. Roller-compacted concrete is what is was called. So up in the reservoir, where we got all the materials, there was large mounds of sands that were discarded because of the quality, that were just sitting there when the reservoir was filled. So we went in there and capped all those with a cement grout. That cost us some money, but we felt it was the right thing to do, and it was the right thing to do under the circumstances.

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45. Completed in 1987, Upper Stillwater Dam is a feature of the Bonneville Unit, located about 31 miles northwest of Duchesne, Utah.



Storey: So the color was leaching out of the sand?

Hirschi: Yes, that's what was happening. Over time it would have disappeared, but we felt we couldn't take the time. So we went and spent several million dollars to do that. Of course, you always get criticism from others that say, "Well, why didn't you think about that? Why didn't you realize it was going to be red?" Well, hindsight is good. So that was really a media event.

The other thing, too, was the Upper Stillwater Dam, the roller-compacted concrete was quite unique, not in European world terms, but in United States terms. The Corps of Engineers had built one, possibly two, but it was still really in the experimental stage in this country. It was out first, and people were trying different designs in construction. It turned out in ours, we knew it was going to crack, but it ended up with a few larger cracks in it than we really wanted. Hence, it was leaking a lot. So we got a lot of media coverage on that and showing videos on T-V about the leaky Upper Stillwater Dam and—I can't remember now. One of the announcers on T-V said one of our people called it the Upper Stillwater Springs or something. I don't remember, but it was some negative connotation. We got a lot of media publicity, which, of course, we didn't like, but we dealt with it. We dealt with it.

### **Fontenelle Dam**

So we had a lot of fun time. Fontenelle was probably one of our most difficult ones, because the local news talk show, the local talk show station requested someone come up there and go on a talk show and answer questions as to why the Bureau of Reclamation hadn't foreseen the need to drain Fontenelle on a reasonable schedule without having to go into emergency release. Well, guess who was designated to go up?

Storey: You, I suppose.

Hirschi: Me. Was I put on the hot seat. Whew! Really. I can't be critical of those people. The history of the Jordanelle hadn't been the best.

Storey: Fontenelle, I think. You said Jordanelle. Fontanelle?

Hirschi: Did I say Jordanelle? Fontenelle.

Storey: Yes. I did the same thing when I was writing notes a minute ago.

Hirschi: The history on Fontenelle hadn't been the best, and they were aware of it. They were very concerned with what had gone on and why the Bureau didn't anticipate certain

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things, and if you're going to rebuild it, what assurances have we got that this time it'll stay. I suspect we got more publicity for good or for bad on Jordanelle than any other.

Storey: On Fontenelle. (laughter)

### **Well Drilling for Fish Enhancement**

Hirschi: Yes. Correct me. On Fontenelle. Then next there was probably, I don't know, a lot on Jordanelle. A lot on Upper Stillwater. We had a little event—I was trying to think of the location, but it was up in Wyoming. It wasn't too long before I retired. The planners and environmentalists had worked with the state agencies and thought that we could drill a well to produce some water for fish enhancement in one of the little streams up there. I don't remember the name of it, but anyway, we went in there and drilled this well. Well, it turned out that things didn't turn out too well and we had to emergency cap the darn thing. It was under pressure. We had to call in some real experts to get it capped. Then we realized it wasn't a permanent cap. Anyway, boy, we really got some adverse publicity on that thing.

Storey: What was wrong?

Hirschi: I was just trying to reconstruct it in my mind. It was something to do with the sub-terrain wasn't what we expected, and they weren't able to get the casing in properly. The water was coming up on the outside of the casing, as I recall. Going strictly from memory now without much thought of thinking back what really happened. But normally you did a well, and as you go down, you put steel casing down. Then after you get the steel casing down, then you go down and perforate the casing where you've got good water channels, and you're in control. Then you put your release valves on top to let your water and all this. You're in full control.

Well, because of what happened, we weren't in full control, and you can have a blowout where you've got a well and it's just running water, and you've got a problem on your hands. A lot of concern about you're going to have this thing blowing water, and, two, have you changed water passages below that might affect water supply into the wells that exist around or into where the little small communities got their water. There was all kinds of things that surfaced on that.

We go an awful lot of—and we were working with Wyoming Fish and Game on that, too. So both agencies really got beat up a little bit in the press. But in the end, we got it satisfactorily resolved, as far as I know. We got it taken care of. We got some experts in that told us how to approach it, and we approached it. I think we tried one or two things that we didn't like, but as far as I know, we got her taken care of. So we had a lot of media events.

But anyway, like I say, the years I spent here, I really enjoyed my Reclamation career. I would do it over again just like that. I really enjoyed it, but I suppose the climax was here in this region, seeing what we really accomplished, including building Jordanelle Dam. That was a highlight.

Storey: How long were you Assistant Regional Director after Cliff came back as Regional Director? That would have been what, '86 or so? '85?

### **Acting Regional Director**

Hirschi: You mean how long before, how long during or after?

Storey: How long were you Acting Regional Director?

Hirschi: I was Acting Regional Director for about six months while he was gone six months. He wasn't Acting Commissioner for six months, but he stayed there for a month or so when—I think it was Duvall.

Storey: Yes, Dale Duvall came in.

Hirschi: Dale Duvall<sup>46</sup> came aboard as a transition period between him and Dale. So he was gone for all intents and purposes, as I recall, six months.

Storey: Then after that, how long did you remain before you retired?

Hirschi: I didn't retire until January 2, 1993. But Cliff retired—

Storey: In '89.

Hirschi: Yes. He retired in '89. I acted then, in fact, acted really longer than six months, for all intents and purposes, because once Cliff decided he was going to retire and knew who he was going to work for, then he had to distance himself on some matters. Okay? Pursuant to the regulations that exist.

Storey: Because he was going to CREDA [Colorado River Energy Distribution Association].

Hirschi: That's right. So there were certain things then that he would not become involved in.

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46. C. Dale Duvall was Commissioner of the Bureau of Reclamation under the George H. W. Bush administration from 1985 to 1989. Mr. Duvall also participated in Reclamation's oral history program. See C. Dale Duvall, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interview conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, January 26, 1993, in Washington, D.C., edited by Brit Allan Storey, [www.usbr.gov/history/oralhist.html](http://www.usbr.gov/history/oralhist.html).

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It's my understanding he got advice from experts in this sort of thing to make sure that he didn't get crosswise with any regulations. So he actually backed out of a lot of things, so I took on a much heavier load for a number of months. But I think it was about five months from the time he retired until Roland Robison come aboard as the next Regional Director.

Storey: What was going on?

Hirschi: What? When?

Storey: In that period of time.

Hirschi: You mean work-wise?

Storey: Yes, work-wise. What were the issues?

Hirschi: Let's see. Roland would have come aboard in—when was it?

Storey: '89 to '90. Cliff retired in '89, I believe.

Hirschi: Okay. Cliff retired about October, that's right, or November, and Roland came aboard, I think, in July of '90. We were just in full steam ahead on most of the programs I talked about—Jordanelle Dam, Dolores. Ridgeway was done. The salinity program. Navajo may have still been under construction. Most everything, other than Ridgeway, was still full steam ahead at that point in time.

Storey: Tell me what the salinity program was about.

Hirschi: We probably went through the red water before then. There's things that I've talked about that were preceding Roland coming. What was your question?

Storey: The salinity program,<sup>47</sup> what was that about?

### **Colorado River Basin Salinity Control Project**

Hirschi: There was an act passed by Congress that provided for construction and other measures to reduce the total salt content that arrived at the Mexican border. Just another part of the program to reduce the impacts of salt on irrigation in the [Colorado River] lower basin and the amount of salinity going to Mexico. So it was an in-states program as

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47. Refers to the Colorado River Basin Salinity Control Project, authorized by Congress in 1974 to reduce the amount of salinity in the Colorado River. For more information, see Lara Bicknell, "Colorado River Salinity Control Project," Denver: Bureau of Reclamation History Program, 1999, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

well as out—the desalting plant was geared specifically at Mexico. But here again, the less salt that arrived at Imperial Dam, the better. So that was quit an extensive program.

So what was done, there were a lot of salty wells that had been drilled over the years that were capped as minor efforts. In the Grand Junction area, an awful lot of old canals that were leaking like sieves were rehabilitated, relined. On the lower Colorado [River], we were trying to deal with ways of dealing—I know LaVerkin Springs was a salty spring and they were trying to figure out how to get those out of the river, even a little desalting plant, but I don't know what was ever done. Evaporation, of course, didn't result in salt.

So it was an extensive program to try and reduce it, and a lot of people argued about whether or not it was a good program or cost-effective, but I'm not going to second-guess what Congress passed. I think by and large it was a good program. Of course, when you got into rehabilitating existing irrigation systems, it involved the water users, so you had to work out an agreement with them on how you would approach it, and the costs, and the O&M costs, and all of this thing. So they got very, very involved. This salinity program was non-reimbursable.

Storey: So all of a sudden all their canals needed to be lined or relined?

Hirschi: Yes and no. On some of them, they would rather have had the Bureau of Reclamation stay out, because once we got in there, then we had some say. So yes and no to that question. But usually if you sat down with them and explained the program and what it would achieve, they were willing to discuss and work out an agreement. But it wasn't always easy. That's still an ongoing program and it will be for a number of years. Of course, we were doing the most cost-effective ones first.

I didn't mention the—well, let's see, the other—what was it? What did we call it? The injection project. Salinity control injection. I can't remember the name of the well, but in lower Colorado River, we dug a geothermal well. In the upper Colorado, we were constructing a test salt-injection well. That was down at—where was it—kind of west and kitty-corner between Montrose and Cortez, west of them.

Storey: What's a salt-injection well?

### **Salt Injection Well**

Hirschi: It was taking very, very salty water from springs, for instance, and injecting it at, say, two-thousand, three-thousand, whatever, feet below the surface into the strata down there as a means of getting it out of the Colorado River drainage system. That was an

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interesting program. When I left, they had the well complete, and, of course, the surface facilities to inject it. It was in a shake-down operation, trying to get it to work, and, of course, they were having a lot of difficulties because of the tremendous pressures that it took. I can't remember the depth of that well. Gosh, it almost seemed like we were down twelve—I hadn't better say, but it was very deep, and took tremendous pressures to push that water down there and out into the strata. So they were in shake-down mode, and they were having a lot of problems. It was, for all intents and purposes, experimental, but with a lot of confidence that it would work. I don't know what's happened today.

Storey: Did I ask you the other day when we talked where you were when you heard about Teton?

Hirschi: I don't know if you did or not.

Storey: Then why don't you tell me, if you remember.

### **Teton Dam**

Hirschi: Well, I remember very well. I don't remember the date, but I remember where I was at. It was in the morning. I was at a church meeting with about four others. We were sitting there, I think about six in the morning or whatever, and someone poked their head in and said, "The Teton Dam just failed."

And I laughed. I said, "Teton?"

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BEGIN SIDE 2, TAPE 2. AUGUST 15, 1996.

Storey: No way, no way Teton would fail.

Hirschi: And you know what? I never gave it much more attention. I mean, it just went in one ear and out the other. I said, "They've got to have the wrong name." That's how much confidence that I had it was not Teton. Well, as it turned out, I was wrong.

Storey: How did it affect people you were working with? How did people react to the failure?

Hirschi: Well, as one construction engineer put it well, "There was a pre-Teton Bureau of Reclamation and a post-Teton Bureau of Reclamation." That's how dramatic of an effect it had on the overall Bureau of Reclamation. Really. It was the first dam that had ever failed by the Bureau or the Corps of Engineers. And it just brought to mind that what you thought couldn't happen did happen. It really shook the organization, I

think, almost to its bootstraps, and caused, I guess, some finger-pointing within the Bureau as to who done what and why, and how could this possibly happen.

I mean, the Denver Office was considered world-renowned as one of the premier design organizations ever. It was just unbelievable that something like this could happen, and yet it happened, and you had to deal with it. And if it failed, what else have you got around there? It wasn't until I moved to Upper Colorado Region that I realized how many other dams had a similar design, particularly in this region, Upper Colorado.

### **Repercussions from Teton**

So, yes, that construction engineer was right on. There was a pre-and a post-Bureau of Reclamation. That dramatic of a change. It thrust the Bureau into an enormous undertaking of how to assure that other dams aren't vulnerable to the same. In my view, there was a lot of "haste makes waste" that occurred collectively in the Bureau of Reclamation dealing with this problem that hadn't ever happened before, and coming up with a ways and means of analyzing all our dams. And the best way to approach it was a major challenge, a lot of different views.

In the end, we probably got there, but I think we spent a lot of money and a lot of energy unnecessarily. Now, I'm not saying that to be real critical, because probably any agency that would have had experienced that would have had a similar challenge. So I'm looking at it from a Monday-morning quarterbacking. But in the end, I think we got there in ways to analyze the dams, to investigate them, to put in monitoring systems, and to have annual or semi-annual or whatever periodic checks to make sure this never happens again, and I think we got there. I'm quite confident that every dam has been thoroughly examined.

We took measures on several dams in this region while I was working to modify them. That program is still ongoing. We did several. Pineview Dam was one, and I mentioned, of course, Fontenelle. Let's see. We did not Starvation,<sup>48</sup> but another one out there—what is it? The name slips me, but it's out in the Vernal area. We did that one. Scofield, I think we did, or they're working on it now. We did Navajo Dam. So there were several we did while I was aboard, and there's a program in place to do all of them that require it, and we did the ones, of course, that we were more concerned about first, and the ones we were less concerned about last. So that's an ongoing program.

It's unfortunate it took Teton to bring that about. I'll tell you, the Corps of

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48. Starvation Dam is a feature of the Bonneville Unit of the Central Utah Project and was completed in 1970.

Engineers did the same thing very swiftly in all the dams they built. Of course, a lot of their dams, and probably most of them, don't hold water except for regulatory flood control, whereas our dams do both, regulatory flood control and conservation. So we had to pounce on it.

Storey: What other issues should we talk about for while you were Assistant Regional Director?

### **Region was Very Productive**

Hirschi: I don't know that we've only skimmed the surface on what happened in those twelve years, just skimmed the surface. I look back on it and I think, "How did we ever achieve all this?" We were quite productive, really. I had a very good region, very good people, by and large, a lot of togetherness. Contrary to what the public view was, we were not do-nots, you know, on the gravy train. Very productive twelve years. Turned out an enormous of work that was in the best interest of the public.

You look at this Wasatch Front and how it's grown over the years. Where do they get their water? Bureau of Reclamation programs. All the way from Brigham City to Provo, with plans maybe even beyond. Never would have happened without Reclamation programs. We built them at a time when it was cost-effective, well in advance of the need. But there when it was needed, and they still have a good water supply for at least probably, in my view, 2010 and perhaps beyond, with conservation measures. They've still got the Bear River that they can tap.

We haven't begin to move over the water—well, maybe they are now, but we hadn't—begin to move the water from the Uinta Basin to this Wasatch Basin that we could have. See, Strawberry Dam was reconstructed in a different location and the reservoir enlarged, I think, three times. I get mixed up a little on the surface versus the volume, but probably three times the volume. That'll take a number of years to fill, and they're doing that now. So they're probably moving all the water over that they can, but it's going into Strawberry, into holding. Some's going out of Strawberry, too.

Storey: Did you get involved in the discussions with the water-user group over C-U-P [Central Utah Project] and what should be considered part of the project cost, reimbursable costs and what shouldn't?

Hirschi: You mean before they took over?

Storey: Yes.

### **CUP Repayments**



Hirschi: Things, of course, pretty well prescribed by the legislation. Generally speaking, the legislation plus other policy decisions and legal opinions pretty well set forth the ground rules on repayment. Of course, there was always a little bit of room for argument and disagreement and whatnot, but they had to sign the repayment contract initially—I don't remember what year that was, but way back.

That was another thing I haven't mentioned that was a dramatic point in time, which Ed Clyde and Scott Matheson had a great deal to do with, and that was getting the repayment contract signed, because they had to raise the ceiling of it, the authorized ceiling in it, because so much time had gone by, the costs had increased because of inflation. I believe that occurred while Cliff was Acting Commissioner and I was Acting Director. I'm almost confident it did, because I think I signed the repayment contract, I'm not sure. I remember signing a lot of contracts. But, see, that had to go out to a vote of all of the counties that were participants in that repayment contract, and there were a lot of them, it seemed like, I don't know, twelve or so.

Well, there was some concern whether or not the vote would pass. There were some of the counties that were a little unhappy about not getting their way on everything, so they were suggesting that maybe they would boycott the thing. But Ed Clyde and Scott Matheson, two great, powerful figures in my view, got the message out that, "Hey, this is an important project." So it carried very well when it come to the vote. But that was an important time in the history of the project.

I think the most controversial—I think I mentioned it. I'm pretty sure I talked about that—controversial was the Jordan Aqueduct and how it was to be repaid. That was the Jordan Aqueduct coming from the—it hooks onto the pipe that starts up in Provo Canyon and picks up water out of the Provo River and scoots it on down through what we used to call the green pipe. It's still there, the green conveyance pipe that's hung on the side of the mountain. It comes around to the mouth of the canyon and we hooked on there and brought in what we called the Jordan Aqueduct, which come to the west of us here and, I don't remember, up to about 21 South here in Salt Lake. That involved the large district plus two other districts that exist here in the Salt Lake Valley.

There's another district I didn't mention, the Provo River Projects office. Provo River Projects<sup>49</sup>—I don't remember the exact name of it, but they were involved in a lot of this activity, but I don't think in the repayment of this Jordan Aqueduct. Anyway, then we had that break that I told you about that we had to repair. So there was quite a

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49. The Provo River Project provides a supplemental water supply for the irrigation of 48,156 acres of farmlands in Utah, Salt Lake, and Wasatch Counties, as well as an assured domestic water supply for Salt Lake City, Provo, Orem, Pleasant Grove, Lindon, American Fork, and Lehi, Utah. The key structure of the project, Deer Creek Dam, is located on the Provo River east of the project lands. For more information, see Tina Marie Bell, "Provo River Project," Denver: Bureau of Reclamation History Program, [www.usbr.gov/history/projhist.html](http://www.usbr.gov/history/projhist.html).

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lot of discussions on the aqueduct and the repayment of it, and who should pay what percentage of it, but I think in the end they got the break costs non-reimbursable and then they bought it out after I retired, as I recall. So that should be settled.

Storey: At a discount.

### **District Taking Over Construction of the CUP**

Hirschi: At a discount, correct. Then I mentioned the fact that the district got—I think it was called the Central Utah Water Completion Act. I think that was the name of it, and I think that was enacted about the year—well, I think that was enacted in about 1992, I'd guess, just not too long before I retired, and, in essence, gave the district the authority to complete the Central Utah Project and to accomplish a lot of what they called mitigation works jointly with that construction. That's all ongoing.

Right now they're building the Diamond Fork Pipeline, which is a pipeline that we had designed that takes the water that comes from Upper Stillwater Dam and also picked up in a lot of the streams that come this direction through a series of tunnels and aqueducts and comes through Currant Creek Dam and as a regulatory storage then dumps into Strawberry then comes out of Strawberry through a spanking-new tunnel we built down into what we call the Diamond Fork area. Anyway, the last pipeline that needed to be built to carry it to Spanish Fork River, what's called Diamond Fork Pipeline, that's now under construction by the district. That'll take the water right in there to Spanish Fork—not Spanish Fork. Well, I maybe getting confused here. Maybe it's to the Provo. I'm not sure there. I'm getting confused now.

That could be the last pipeline to be built unless they decide to build the full irrigation component. There could be some changes in that regard relative to future M&I demands and whatnot. That's all up to the district to decide now, but the basic plan—they have all our plans. We really had the whole thing planned out, including the irrigation and drainage system, and had gathered a lot of design data for pipelines, pumping plants. They have all that data. So in essence, they have the basic design. Well, the basic designs if they want to build it that way. They'd have to hire a consultant to complete the designs for contract purposes.

Storey: That happened about the time you left?

Hirschi: I would say it probably happened in '92. 1992, I think that Completion Act was passed that gave them that authority. In essence, what I said, you can describe it how you want, but in essence, it kind of sets them up with the authorities that Reclamation had to plan and construct the remainder of the Central Utah Project, and they don't report to Reclamation, they report directly to the Secretary's Office.

Storey: But there's a Reclamation employee?

Hirschi: Yes. Ron Johnson, who was the Project Manager at Grand Junction when I was working, was moved to the [water] district office location. Now he's still on the government payroll. I don't know if he's categorized as a--well, actually, he reports to the Secretary's Office, so I assume he's on the Secretary's payroll. That's my assumption. But anyway, he is there to work with the district and with the Secretary's Office on all matters that pertain to the completion of the Central Utah Project. I bumped in to him this morning and talked to him a little bit about it and how it's working and everything. He was telling me they're building Diamond Fork.

So he's the key Reclamation individual that services the district, Reclamation or Department, however you want to look at it. And he's a very good individual because he has a very vast knowledge of Reclamation requirements as it pertains to repayment matters. So they probably couldn't have picked an individual that had more knowledge than Ron in that regard. A very good individual.

Storey: Tell me about your decision to leave Reclamation.

### **Decision to Retire**

Hirschi: It was a tough decision, it really was. The decision to retire is difficult, and you never know if it's the right step. If I had known certain things, I may not have retired when I did. One of them was Roland wasn't quite certain when he was going to retire, and I felt when Roland left, I wanted to leave, too. Roland was very good to work with, and I felt that if Roland retired, I probably wouldn't become Regional Director. And I didn't know at that point in time, since I had about thirty-eight years, I wouldn't want it anyway.

And then our construction program was diminishing considerably with the district getting the completion of Central Utah Project and the others winding down. A lot of them had been pretty much finished. Dolores was in its final year or two. Rick Gold was--see, we put him in as Assistant Regional Director for Planning and Operations and I kept the construction side, and he and I worked together closely because a lot of the projects had all of it, you know, planning, operations, and construction. Rick was good to work with.

So my work load was diminishing considerably, and so given the whole scenario, and I talked to Roland, I said, "Do you know when you're going to retire?" He says, "Well, not sure. It's going to be within the year probably." Probably, you know. But he hadn't really set a date.

I'd kind of saved all my leave for the year, and when it got to December, I told my wife, "You know, I'm not sure I really ought to do this." (laughter) She says, "Well, good heavens, we've been talking about it all year long." She says, "I don't want to have to go through this again." So I retired, and it was a hard decision.

In retrospect, Roland did stay another year, and I think had I really known that, I may have stayed. I don't know what I would have done, but that would have been a bit of information that I didn't have. He was having the same struggle that I was. "Should I retire or shouldn't I retire?" It's just one day you get up and, "Today's the day." And I suppose that's happened to him.

Storey: Did you plan to do anything after you left Reclamation?

### **Plans After Retirement**

Hirschi: Oh, I thought of maybe doing some consulting work, and I did talk to one or two or three individuals about that. But generally speaking, I guess Daren Reese and I were on the same wavelength—he's the Personnel Officer here. I've got a job, but I quit this job, and I don't want another one. I was kind of on that wavelength, and yet you get out there and you think, "Well, what am I going to do now?" But I did think of consulting, and I talked to Phil Sharp. He was working with Montgomery Engineering then in Sacramento, and I think if I had wanted to go to Sacramento, he'd have hired me in a second. That's what I think, but I didn't want to move. I talked to Montgomery Engineering a little bit, but I'd worked hard for twelve years, 110 percent all the time, and was tired, and mentally kind of tired, you know. So a rest was in order, and I'm still resting. (laughter)

But I miss it. I miss it. Well, I don't miss the—people have asked me, "Do you miss it?" And I said, "I really haven't thought, for all intents and purposes, anything about the programs. They're in good hands. They don't need me." But I really miss the people. In thirty-eight years you build up a relationship with an enormous amount of people, not just in this region, Bureau-wide, and they're my friends, and you really miss them because you don't see them anymore. That's probably the biggest disadvantage to retirement. It takes you out of the circle of friends. A lot of them I was very close to and you never see them.

Storey: I'd like to ask whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Hirschi: Well, today, I think everything I've said, I would be comfortable with.

Storey: Good. Thank you very much. [Tape recorder turned off]

Hirschi: To my surprise, he showed that at my retirement party, the whole dang thing.

**Going Away Video**

Storey: Oh, really. This is a video that Barry Wirth, the Public Affairs Officer here in the region, did.

Hirschi: It was a long one. Yes, he elected to show that at my retirement party, and I thought he was just going to show part, and I believe he showed the whole thing. I sat there thinking, "Hey, these people don't want to see that." (laughter)

Storey: That's another record that might be available for researchers.

Hirschi: It's a long one. And he covers an awful lot of things that we've covered. We talked an awful lot about the programs, and he took me, as I recall, from where I was born and raised, where I went to school, and covered Weber Basin and my whole career.

Storey: I take it you wouldn't have any problem about people using that material either?

Hirschi: No.

Storey: Good. Thanks.

END SIDE 2, TAPE 2. AUGUST 15, 1996.  
END OF INTERVIEWS.