ORAL HISTORY INTERVIEWS

ROBERT TOWLES

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STATUS OF INTERVIEWS:
OPEN FOR RESEARCH

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Statement of Donation

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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, Robert J. Towles, (hereinafter referred to as "the Donor"), of Boulder City, Nevada, 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 States 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 March 31, and April 1, 1994, at Boulder City, Nevada, 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 interests I now possess in the Donated Materials.

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INTERVIEWER: _____
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, the Bureau of Reclamation created 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.

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

Oral History Interviews

Robert Towles

Storey: This is Brit Allan Storey, Senior Historian of the Bureau of Reclamation, interviewing Robert J. Towles, Regional Director of the Lower Colorado Region of the Bureau of Reclamation, in the Lower Colorado Regional Offices in Boulder City, Nevada, on March 31, 1994, at about 1:30 in the afternoon. This is tape one.

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

Early Life

Towles: Okay, I was born in Phoenix, Arizona, November 6, 1925, and then I spent, oh, I guess until about the third grade or so there in Phoenix, and then we moved to Yuma. The lady that raised me worked for the construction engineer on the All-American Canal,[1] R-B Williams. And we were in Yuma for a year or so, and then we went to . . . There was a break in service, and we moved around, this lady, whose name was Mae Moy . . . We moved around. And then about '39, I believe, or '40, we moved to Friant Dam,[2] and we lived in the government camp there at Friant and Mrs. Moy was again the secretary for the construction engineer of Friant, which was R-B Williams at that time. Then I was raised in the government camp there at Friant and went to high school in Clovis. Then went into the service after I got out of high school at eighteen. Then I went to the University of Arizona and graduated from there in about '53. So that's kind of . . . I received a B-S degree in civil engineering.

Storey: Well, let's go back. May I ask about this woman who raised you?

Towles: Uh-huh.

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[1] The All-American Canal System, located in the southeastern corner of California, consists of the Imperial Diversion Dam and Desilting Works, the 80-mile All-American Canal, the 123-mile Coachella Canal, and appurtenant structures. The system has the capacity, through water diversions from the Colorado River at Imperial Dam, to irrigate about 530,000 acres of fertile land in the Imperial Valley and about 78,530 acres in the Coachella Valley. For more information see, Eric A. Stene, "All-American Canal: Boulder Canyon Project," (Denver: Bureau of Reclamation History Program, 1995, reedited 2009), https://www.usbr.gov/projects/pdf.php?id=80.

[2] Completed in 1942, Friant Dam is a concrete gravity dam 319 feet high with a crest length of 3,488 feet on the upper San Joaquin River in the Sierra Nevada foothills of Fresno County, California, near the town of Friant.

Storey: Were you orphaned?

Towles: Well, my mother died when I was quite young, and this lady was a good friend of the family, and she lost her husband. And so, she started to raise me, and my father left and went to Washington, up at Bremerton, and worked for the Navy Department. And so, I was with this lady, and she raised me. My father passed away probably in about . . . oh, I think it must have been about '44. And so really, she was the one that raised me. And so, she was just like part of the family.

Storey: So, you moved to the Yuma Project,[3] I believe you said when you were about in the third grade?

Towles: Yeah, uh-huh. We were there for about a year or so.

Storey: Do you remember anything about Yuma?

Towles: Oh, I remember we lived in a hotel. I think it was called the Del Main or the Del Sol or something like that. It was right by the railroad station. We just lived in the hotel, I used to play in the hobo jungle there. That had to be – I don't recall the dates, but that had to be during the Depression. It had to be in the mid-30s, and times were pretty rough then, a lot of people out of work. I remember they were building the All-American Canal, so whatever dates those were, was when we were there.

Storey: Do you remember anything about the Reclamation Offices or anything where Mrs. Moy worked?

Towles: The office at Yuma was in – If I recall correctly – was in the old post office building. I went up there a couple of times, in the basement I think, of the post office building, right in town, right downtown. And I think I can remember taking some trips with various people out to the canal and seeing the big drag lines working and so forth. Since then, I've seen pictures where the drag line bucket would hold a vehicle and all those kind of things. And I can remember seeing those. I think they were called Manitowocs or something like that. But they were

[3] The Yuma Project is one of Reclamation's earliest efforts, with construction beginning in 1905. It provides water to irrigate 68,091 acres in the vicinity of the towns of Yuma, Somerton, and Gadsden in Arizona, and Bard and Winterhaven in California. The project is divided into the Reservation Division, which consists of 14,676 acres in California, and the Valley Division, which consists of 53,415 acres in Arizona. The Reservation Division is further subdivided into the 7,120-acre Bard Unit and the 7,556-acre Indian Unit. The original features of the project include Laguna Dam on the Colorado River, the Boundary Pumping Plant, one Powerplant, and a system of canals, laterals, and drains. Laguna Dam has not been used as a diversion structure since 1948. For more information see, Eric A. Stene, "Yuma Project and Yuma Auxiliary Project," (Denver: Bureau of Reclamation History Program, 1996), https://www.usbr.gov/projects/pdf.php?id=212.

a different type of machine.

Storey: Do you have any recollection of people talking about what Reclamation meant to the community at that time?

Towles: No, none at all.

Storey: Do you have any recollections of anybody talking about water or water disputes then?

Towles: Un-uh.

Storey: Water rights? Nothing like that?

Towles: No, I'd have been too young for any of that. That wouldn't register.

Storey: Okay. You mentioned that you moved around after she left Yuma after about a year.

Towles: Uh-huh, we went to San Francisco, and she worked in some type of clerical work, and then we moved to Friant.

Storey: So, it wasn't that she was with Reclamation, moving around?

Towles: No, she wasn't for Reclamation at that time, right.

Storey: Do you have any idea why she went back to Reclamation?

Towles: No, I'm just assuming that it must have been a better position than what she had. And I don't even recall what position she had while we were in San Francisco.

Storey: Did you live in a construction camp at Friant?

Friant Construction Camp

Towles: Yeah.

Storey: What was that like?

Towles: They were "temporary housing," they called them. I recall that they were put up, as I say, for a temporary stay. And Lord, I think they ended up being used for twenty years or more. In fact, I *know* they were, because when I got out of school,

I moved back in them when I went to working for the Bureau full-time, and I lived in one of the houses that was in the camp when I was raised there. And they were, as I say, they were temporary. Well, just regular construction house. There were the shelves for cupboards, and screen porches that most of the people enclosed to make another room out of them, and things like that. But they were nice homes.

Storey: What do you remember about the home that you lived in with Mrs. Moy?

Towles: Well, I remember I had a pretty good time. I worked as taking care of lawns when I was going to high school – when I was going to *grammar* school, there at Friant. I went to high school in Clovis, which was twelve miles away. And that's why I've got so many years – As I got up into the high school age, they would hire me during the summer, and I would work as a gardener. One summer I worked as a janitor, and I worked parking government vehicles and gassing them up and working in the garage. And then I finally – They got me into the lab, digging test ditch; and then I got on the surveys; and then I started to go to college and things like that. I got out, I came right back and worked on some of the same survey crews that I worked before I got my degree. And so, then I just worked up in the organization.

Storey: When you were at Friant, were they constructing something?

Towles: Yeah, they were building Friant Dam.

Storey: They were building the dam itself.

Towles: Uh-huh, and also the first portion of the Friant-Kern Canal. The war interrupted the canal portion, I believe. I think the dam went ahead and completed construction, but the canal was stopped until after the war, and then they went ahead and all the troops started to come back and a lot of the Bureau engineers went into the service. And then they came back, they got their jobs back, and then they started to build the Friant-Kern Canal,[4] when went on from Friant to Kern – Kern County, I believe, down there around Bakersfield. And that's where I spent a lot of my time working on the surveys and like that.

Storey: Did we keep more elaborate grounds then than we do now? You mentioned that you worked as a gardener.

Towles: Oh yes.

[4] The Friant-Kern Canal carries water more than 151.8 miles in a southerly direction from Millerton Lake to the Kern River, near Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare and Kern counties. Construction of the canal began in 1945 and was completed in 1951.

Storey: What did we maintain, for instance?

Towles: Well, all of those houses had lawns, and they were turned over to the people that were renting the homes, but evidently there were either some that – and I may be mistaken on this – but for some reason I think there may have been some that the government took care of for a fee, maybe, or they could have been the vacant houses waiting for people to move in, but I can recall they would get – The fall of the year they'd probably put in a winter grass, rye grass or something, and they'd bring in big truckloads of fertilizer and dump them around. I can still remember the government camp smelling like steer manure until that got all washed-in, watering and so forth. And then of course they had lawns around the main office and the dormitories and the office building. They did take care of them much more than they do nowadays.

Storey: It would have been a pretty large community then?

Towles: Yeah, I would guess there had to be, oh, I guess maybe fifty houses or so – I'm not sure of that number, but something like that.

Storey: And a lot of kids?

Towles: A lot of kids. A lot of people came off [Grand] Coulee [Dam], transferred in from Coulee to Friant, finished up Friant; and I think probably from Shasta [Dam]. In those days, people kind of rotated around. As they finished one job, there was another one to go to, so you always had the Coulee clique or the Shasta clique or some clique – a group of people would come in. Of course, they would all be acquainted and so forth. It was really just like a big family.

Storey: Did you have a best friend that you developed out there at Friant?

Towles: No, I wouldn't say a best friend. No, I think they were just general kids I went to school with and things like that.

Storey: Anybody who's still with Reclamation, or who went to work with Reclamation?

Towles: No, I think . . . No, not really, although there was a fellow I worked for, Mel Martin, he lives in Auburn now. And I'm sure there's others, but Mel comes to my mind. He was an office engineer, and he was at Friant. And then I worked with Mel after I got out of school at Los Banos on the San Luis Dam and San Luis

Project.[5] And then he went up to Auburn, and I think he's retired up there, so yes, he's still active, but that's about all. There's not that many left any more.

Storey: Now, there was a grade school out at the construction camp?

Towles: Yeah.

Storey: What about junior high school?

Towles: No junior high – I went from the eighth grade right into high school at Clovis.

Storey: Okay. Was that a big transition going from sort of the closed community of Friant, into the town in Clovis?

Towles: Yeah. Clovis was just a short distance out of Fresno, and now I think Clovis and Fresno are connected, just with the housing development. And Friant, I remember the kids from Friant came in on a bus, and there was also others that came in from the farms on school buses. But the Friant kids were more or less the river rats. They were looked at as not a permanent-type group. They were construction people and although, gosh, the people at Friant, the engineering side, the government, were there for years and years, you know. So, they were probably more permanent than a lot of people, but still they were looked at as outsiders.

Storey: So, there was some tension between the townspeople?

Towles: Not tension. No, not at all. No, there wasn't any of that. It was just strictly that the kids from the high school were predominantly well-known and so forth, that they came out of the grade schools there in Clovis. And anybody else coming in from other schools into the same school district were just not as acquainted as well as the ones that came up through grade school right in the same little community. Yeah, there was no tension.

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[5] The San Luis Unit is part of both the federal Central Valley Project and the California State Water Project. Authorized by the San Luis Act in June 1960 (Public Law 86-488), it is jointly operated by the Bureau of Reclamation and the California Department of Water Resources. The principal purpose of the San Luis Unit is irrigation water supply for almost 1 million acres of prime farmland in central California. The San Luis Unit is located in California's San Joaquin Valley, which has some of the world's most productive agricultural lands. Much of the west side of the valley has highly fertile soils that benefit from imported irrigation water; however, clay layers beneath the agricultural lands prevent excess irrigation water from draining deeper into the soil and away from crop roots, negatively impacting agricultural productivity. For more information see, Robert Autobee, "San Luis Unit: West San Joaquin Division, Central Valley Project," (Denver: Bureau of Reclamation History Program), https://www.usbr.gov/projects/pdf.php?id=109.

Storey: Did you get involved in activities?

Towles: I played a little bit of football and track.

Storey: Did you develop any close friendships with town kids?

Towles: No, not really, not really.

Storey: Now, let's see, if I recall, you went into the service right out of high school, is that right?

Towles: Right.

Storey: Did you enlist, or were you drafted?

Army Service

Towles: Drafted.

Storey: And what were you drafted into?

Towles: I went into the Army, took basic training at Camp Roberts in California.

Storey: This would have been . . .

Towles: In 1944, about September, August or September. And took basic training there in the infantry and then was shipped overseas and went into Germany. Then I got wounded along, just before we connected-up with the Russians, and that would have been in April of '45. And I think the war was over about May of '45, as I recall, just another month. So, we were right up around the Elbe River up around the northern boundary of _____.

Storey: Were you just in the infantry?

Towles: I was in the Second Armored Division, armored reconnaissance. I didn't get into the infantry. We went over as replacements – they put us wherever they needed us, and so I went into the Second Armored Division, which was at that time in Aachen, Germany.

Storey: Specifically, what were you doing?

Towles: I was what they called a B-A-R., Browning Automatic Rifle. I was in a

reconnaissance battalion, and our job was to spearhead and lead the division through the enemy lines, and then we kept going until we would hit something we couldn't handle, and then the division was following behind, and then they'd move up the tanks and the big stuff, and then we would fight our way through whatever it was, and then we'd keep going again. About that time, this was right near the tail-end of the [Battle of the] Bulge in Belgium, and so that was when we were starting to break through the German lines. We would "spearhead," they call it – you just take off and head for Berlin, and just go.

Storey: Were you in tanks?

Towles: We had tanks in our battalion. I was in a Jeep reconnaissance – they'd send these Jeeps out ahead, with radios of course, and we were leading the division. And then when we hit something bigger than we could handle with a fifty-caliber machine gun and things like that, they would bring up the bigger stuff – half-tracks and armored cars and mobile _____, quick-moving equipment.

Storey: Sounds dangerous.

Towles: (chuckles) Yeah, it was kind of dangerous. (laughs)

Storey: Yeah, I guess so! My wife's uncle was sent into Normandy the day before D-Day!

Towles: Oh, my Lord!

Storey: To establish communications.

Towles: Yeah, that *is* dangerous! (laughs)

Storey: I guess! Second Armored: I'm not familiar with the military history. Who was commanding that?

Towles: Second Armored *was* [General George S.] Patton when they were in South Africa. It's an old established – They called it the "Hell on Wheels" Division. It went into South Africa and then at D-Day it went across the [English] Channel, and then worked its way up through France and got involved in some of the fighting there in Belgium and the Bulge around Christmastime. And it had to be Christmas of '43, I guess, but anyway maybe '44 – '44 maybe. But anyway, and then it was in the Ninth Army under General Simpson. It was all under Montgomery at that time. It was under Montgomery's control. He was with the English general.

Storey: Did you ever see any of those folks?

Towles: Oh, I can remember seeing the General – Simpson I guess it was. I was a private, so I (chuckles) wasn't involved with that type of brass. But yeah, I've seen them around.

Storey: But you didn't have any particular impressions of them, except that you didn't function on their level?

Towles: No. Whenever we would screw up, they would come in. I remember we were waiting at the Rhine River to cross, and we'd fought our way up to the Rhine, and we had got hold of some liquor in one of the sectors that we were patrolling. We were patrolling a certain segment of the Rhine River on the side that we of course had captured, and the Germans were on the other side of the river. So, we hauled a lot of this liquor from the brewery back to our camp, and we were establishing in German houses and so forth. And a lot of the guys got drunk and shot up each other, so the next day the general came in and straightened us all out (laughs) and cleaned-up our act a little bit – those kind of things, you know. And that was about the only time you ever saw the generals.

Storey: Do you mind talking about how you were wounded?

Towles: Oh no! No, I as I say, we were leading the division and going from one town to another and down a road, and we'd just keep going. If you didn't hit anything, you just kept going. And we'd go through a town, and a lot of times the townspeople would put out bed sheets or pillowcases, surrendering and all this and that. And then we were going from one town to another, and it was in rolling hills type country, and we saw some German soldiers jumping in a foxhole or something, and then they opened up on us. We jumped out of the Jeep into the road trenches along the side – drainage trenches – so we were cut off. We tried to get up and get the Jeep turned around to retreat, and that's when I raised up and they caught me in the left arm with a machine gun bullet. So, I think they may have killed – There were three of us, and I think they may have killed the other one. Anyway, it didn't take too much longer before the rest of the battalion came up and then they hauled us back to the first aid and that was about the end of that.

Storey: Do you remember the location?

Towles: No, not really. No, I couldn't pinpoint it as far as any town. It was just across the Rhine River, heading towards the Elbe River.

Storey: So, you were evacuated back to first aid, and then what happened to you?

Towles: Then they flew us . . . I think they operated there at the field hospital, or some hospital, and then flew us to England, and I was there until about . . . gosh, I don't

know. Got hit in April, must have been there . . . probably until about August or September. Then they flew us to California, and I went through various hospitals there, and then I got discharged in California. I think I got discharged in '45. December of '45 or something like that – I don't recall.

Storey: Where were you in California? Do you happen to remember the hospitals?

Towles: Well, Dibble General Hospital was one. I was in one outside of Modesto. And then I was in one over there by . . . And I forgot which one was Dibble – I think Dibble may have been the one by Stanford. It was one right not very far – Redwood City, I think, right around in that area, in the [San Francisco?] Bay Area.

Storey: And then where were you discharged?

Towles: From that hospital, and then I went back to Friant.

Storey: Okay, now what happened when they discharged you? Did they just say, "Okay, goodbye?"

Towles: No, I think they gave you two hundred dollars or something like that, and they discharged you, and then you were through. That was about it.

Storey: And with two hundred dollars you could probably get home, or whatever.

Towles: Oh yeah. They tried to discharge you, I believe . . . Well, I think in my particular case, they try to put you in the hospital closest to your home. I think probably the persons that weren't being discharged under a medical situation, they were probably discharged from various centers throughout, I guess. So, they try to discharge as close as they could to where they have to bring you back to, _____.

Storey: Your wound was rather serious, I take it.

Towles: Oh, it was through the left arm and elbow and partly paralysis and things like that, but not that serious.

Storey: Now why did you go back to Friant?

Returned to Reclamation After the War

Towles: Well, that's where Mae Moy was, that raised me, and she was still working there. So, I went back, and then I started to go to junior college there at Reedley, California – not at Friant, at Reedley. Then after I got about two or three years

there, then I went to university and got my degree in Tucson, University of Arizona. That's where I got my degree.

Storey: Before we go on, could you tell me how to spell Moy?

Towles: —O-Y.

Storey: Okay, I did it instinctively.

Towles: —A-E, Mae, and then M-O-Y.

Storey: Okay. Going to college, going to junior college first at Reedley, how did you put yourself through school?

Towles: I was on the G-I Bill. And then I worked during the summer, and that's when I worked with the Bureau. They would put me on kind of "leave without pay." So, I was working during the summer as a survey aide or as a lab aide, or whatever the case may be.

Storey: Do you happen to remember the sequence of your summer assignments? Your first summer?

Towles: With the Bureau?

Storey: Yeah.

Towles: Well, I think it'd be as a gardener. And then . . .

Storey: And as a gardener you weeded, trimmed, cut lawns?

Towles: Correct. That's how I made my money when I was still in grammar school, and high school, taking care of these yards during the summer.

Storey: What kind of money were they paying you, do you remember?

Towles: Oh, five dollars a month for cutting, and ten dollars a month for watering *and* cutting. And that would be probably cut once a week, four times a month, and water probably every other day.

Storey: Now this is when you were in grade school, junior high, high school?

Towles: Uh-huh.

Storey: Does that mean that you worked all day long? Or did you just have a specified area?

Towles: No, mostly on Saturday. During the summers I'd work all day long.

Storey: Five days a week?

Towles: Yeah. Now I'm not . . . If we're speaking of the time when I was on my own, not working for the Bureau, it was whatever it took. But when I was working for the Bureau, it was five days a week. I think in those days we may have worked half-a-day Saturdays, as I recall. I think at that time everyone worked until Saturday at noon.

Storey: And they were eight-hour days, basically?

Towles: Eight-hour days, right.

Storey: And so, somebody . . . When you were working for Reclamation, somebody was in charge of work crews?

Towles: That's right. Head gardener for instance, and you had certain things to do. And you'd just do those.

Storey: Do you remember if there was any change in pay after you came back and were going to junior college?

Towles: Oh, I'm sure there were difference in pay, but I don't recall what it would be.

Storey: Do you remember what your second year's summer assignment was with Reclamation?

Towles: No, I think I can remember in the lab one summer digging test pits – labor type. Then I can remember another summer working on survey crews on the Friant-Kern Canal. So, I think those would be the – When I had left the laborers and the gardeners and things like that and started to work more on the engineering side, the construction side – it was starting then to work in the lab and work in the survey crews.

Storey: Now, to me, when you say "working in the lab," it means you're in a building with a nice white jacket, doing something. What does it mean to you?

Towles: Yeah, the lab is field work, where you'd go out to get soil samples to decide how

they were going to design the structures – the canal or what-have-you – or for specification purposes. We'd go out there and dig test pits, or we'd auger holes, take samples vertically to see what type of material we were in: sand, cobble, rocks, so forth and so on. And that data was used for when a contractor bids the job, he knows what he's going to have to run into and excavate, whether it's going to be rock . . . So that's the kind of work we did.

Storey: That's the kind of lab work that you were involved in – it was field work.

Towles: Right, field work.

Storey: And you said, "digging holes." It was mostly to take samples?

Towles: Right.

Storey: Was there any other objective?

Towles: No, that was it. You'd take in-place densities – in other words, what you would do is just see how firm the material was at the bottom of a particular test pit to see whether or not it could be ripped easily by the equipment or if it had to be blasted – the density.

Storey: And that was the reason you needed to know the density – was basically so the contractor would know how to bid a job.

Towles: That's right. And then also the shrink factor of the material. In other words, how firm you'd have to put the material back when you build your fills and things like that, to match the existing density and so forth.

Storey: What about when you worked on the survey crew? What specifically were you doing?

Towles: Well, we were running the alignment for the canal out ahead before they constructed it, taking cross-sections, showing what's *along* the alignment, and then tying the canal down to section corners, property descriptions, things like that.

Storey: How many people were in a survey crew?

Towles: Usually had five.

Storey: And what did those five people do?

Towles: They had a rodman, which is kind of a starting position; then you had a chainman

that measured things with a tape or a chain. And then you had an instrument man, and then maybe sometimes he'd be either a levelman or a transit man. And then you had a chief of party. So, a lot of times it could either be four or it could be five. If you were sitting a lot of slope stakes, doing a lot of measuring and pounding in stakes for construction, you had five. If you were just out there tying the canal into various structures or locating it, maybe four.

Storey: And which of those jobs did you do?

Towles: I did them all. I started off with (chuckles) the lowest, and worked my way up, over the years worked my way up to the chief of party and so forth.

Storey: Okay, you mentioned "over the years." How many years did it take you to work yourself up there?

Towles: Oh, I guess, let's see, maybe four years. Let's see, I think I had seven years with the Bureau . . .

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BEGIN SIDE B, TAPE 1. MARCH 31, 1994.

Storey: So, you remember about seven years in Reclamation when you graduated from college.

Towles: Yeah, when I graduated from college, because I was debating whether or not to go back to the government or go do something else. And I think the seven years persuaded me, "Why don't I stick with them?" and then I did.

Storey: When you went to junior college, or in California I think they call them community colleges . . .

Becoming an Engineer

Towles: Yeah.

Storey: What were you studying?

Towles: Engineering.

Storey: Why had you chosen to study engineering?

Towles: Well, I had really been associated with engineering. Everybody I knew, just

through acquaintances, were engineers. In the government camp, all the kids' fathers were engineers. It was an engineering community. And you know, we were building great things. And I could see as a young person, that was great: You're seeing something done, and it was really kind of inspiring. So, I imagine that's why. I don't know why, but I'm assuming that's why.

Storey: In high school you did well with math and sciences and things?

Towles: Yeah, I enjoyed it.

Storey: This sense of "building things and seeing them completed," is that a thing that's of particular interest to you?

Towles: Oh yes, very much so. My whole career has been based on that.

Storey: Why did you chose to go to the University of Arizona?

Towles: Well, really, the construction engineer that I was with had graduated from there. And I was from Arizona, and it was just sort of a natural.

Storey: What was the construction engineer's name?

Towles: Frapps.

Storey: F-R-A-P-P-S?

Towles: Correct. Joe Frapps.

Storey: Was he a person that served as a mentor to you, or anything like that?

Towles: Well, I think maybe not in a formal way, but certainly he was the construction engineer, which in those days meant quite a bit. I mean, they had control over about anything that went on. On that particular construction project, they were, you might say, "God." So, you know, you just kind of look up to those kind of people. And he was ex-military. In fact, most of those people that came back from the war were officers in the military. They were probably – I don't know if this is the case for Joe Frapps – but they were probably working for the Bureau when the war broke out, as young engineers. Then they went into the military as various ranks and various positions. So, when they came out, they came back to their same job, which they were all guaranteed, and so the Bureau was really loaded with ex-military people. And so, it was run like a military organization in those days.

Storey: Tell me about that.

Construction Camps

Towles: Well, you'd have a construction camp, and that was run darned-near like a military encampment: The construction engineer had responsibilities for seeing that the camp was run correctly and that everything was done according to whatever rules and regs and orders. It was pretty simple.

Storey: So, this would be sort of mid to late 40s?

Towles: Uh-huh.

Storey: How would you characterize the way managers interacted with subordinates and that sort of thing?

Towles: There was no doubt who was boss, and there wasn't a lot of participative management. You know, you knew exactly what they wanted, you did it, and no problem.

Storey: Now, Joe Frapps was construction engineer specifically for what?

Towles: That was for a particular section of the Friant-Kern Canal. I can remember him mostly down around Lindsay, California – the canal that went through Lindsay and Porterville. The canal was quite long – I don't recall the miles – but I think it's well over a hundred miles long. So, you had various sections of the canal. You'd have a construction engineer in charge of one section, and another one in charge of another one, and another one in charge of another one. As they finished those sections, they'd leapfrog over and get the next section. A lot of those sections were maybe fifty miles, twenty miles – must have been around twenty miles long.

Storey: So, were they operating out of the original construction camp? And they would travel out?

Towles: Yeah, I think the main office . . . Well, they have their own field offices, but I think the main office was at Friant, at the dam. Then they had these field offices at various locations along the canal. And then you had people in charge of those various offices.

Storey: Okay, now let me see if I understand this correctly. When you came back, you were working on this survey crew for maybe four years or so.

Towles: Uh-huh.

Storey: And if they're constructing it in twenty-mile segments, and if I'm understanding you, there's more than one construction engineer working on different segments.

Towles: Correct.

Storey: That means that the canal has been laid out in a preliminary way already?

Towles: Right.

Storey: And what you are doing was final survey work on the location?

Towles: Well, also, I did a lot of the preliminary work, out ahead of all of this. That would happen during the summers that I was working, you know. Sometimes we'd be down clear at the far end, laying this out. And when I came back, various summers, sometimes I would be assigned to a particular construction organization that was building the canal through that same area that we had laid out summers before. So, it was a real opportunity to see it right from the very original activities through the final.

Storey: Which phase of that work did you like the best?

Towles: Oh, I don't know if there was any one I liked better than the other. They were different. It's more exciting when you're building something, but yet it was exciting to go through and kind of lay the canal out and look for section corners and property ties to it and all that. So, it was different types of work. But I guess if I had to choose one, I'd say probably the construction was the most interesting, because you moved-in large equipment, and a lot of activity.

Storey: Drag lines and things?

Towles: Drag lines and all kinds of _____.

Storey: Now, if I'm understanding, a drag line is sort of a large (chuckles), what I call a "steam shovel."

Towles: Well, that's a shovel. A drag line, the bucket goes out, and then it pulls the material back towards itself, and then lifts it and dumps it somewhere; where a shovel will kind of scoop it up.

Storey: Away from itself?

Towles: Yeah, away from itself. So, you've got those two. And of course, they all vary in sizes.

Storey: Now, you went down to Arizona and studied there. Was there anybody at the university who was a particular influence in your career?

Towles: No, I don't believe so. I had no . . . We were all in engineering together, the class, and no, I couldn't recall anything. It's odd, though, as we get further into this, I ended up on the Central Arizona Project, and I'm right back in Tucson again! (chuckles) building the canal.

Storey: Yeah. You graduated in '53, and then if I remember correctly, you went back to Friant?

Towles: Back to Friant and started to work on the various activities out of Friant.

Storey: You were still doing surveying at that time?

Towles: Surveying, uh-huh.

Storey: So how many years do you suppose you worked on surveying after you graduated?

Becoming a Reclamation Engineer

Towles: I'd guess a couple of years. Then I transferred . . . I transferred to Lindsay, California, and I got involved in construction – inspection work.

Storey: Did you go through a Rotation Engineer Program?

Towles: No, they wanted me to, and as I say, when I got out of college, I had seven years with them. And I had worked for various construction engineers on the Friant-Kern [Canal] during that time, so they all expected me to come back to them when I got out of school. Well then, we had the administrative group that felt I ought to go on a rotation, and I wanted to get to work. I wanted to go and go. So, I can recall there was some pretty hard feelings and discussions of why I should or shouldn't go back to the construction job I had. And so, it ended up that I went back to the construction engineer and his construction force and so I *didn't* go on rotation.

Storey: Was there anything besides the fact that you had seven years of service, that inclined you to go back to Reclamation?

Towles: Oh, I think . . . I don't think I ever would have left it, one way or the other. I can remember writing to the Personnel Office and asking what grade I would get when I got out of college, and I think I must have been a 5 by that time. (aside about tape) I might of been a 5. I don't know if it'd be an S-B-5. At one time we were S-P or subprofessional. Then we were G-M. I don't remember when we changed, but anyway they offered me the same grade I had when I got out of college with a degree that I had when I went (chuckles) to college. And so, I was trying to say, "Well . . ." And I had contacted the Army at the Yuma Test Center there, and they would have given me a grade higher. And so, I was trying to jockey. "If they can give me a grade higher, why can't you people give me a grade higher?" Anyway, it ended up I went back to the Bureau (laughs) as a G-S-5.

Storey: G-S-5?

Towles: Right. I think it was G-S, or S-P – I forget which now.

Storey: Was there something about Reclamation that attracted you?

Towles: Oh, I think I knew everybody. I think it was just like home. See, I'd grown up in Reclamation.

Storey: And you felt comfortable with the people.

Towles: Comfortable! And they liked me, I liked them. And so, I don't think I'd have left them anyway. But it took a year. In a year they gave me a promotion to a 7, I think. And it took a year to get the promotion.

Storey: And then after a couple of years you moved to Lindsay, California, doing construction supervision.

Towles: Right.

Storey: What were you doing, precisely?

Construction Supervision

Towles: I think it was work on the Friant-Kern Canal. It would be working with the contractor, surveying, doing some survey work I can recall we did, and some inspection work, the lining operation of the canal, the excavation, the siphons, the structure work.

Storey: This was the concrete lining?

Towles: Yeah.

Storey: Did you have to supervise the sealing of joints or anything like that?

Towles: Oh, I don't know if I got into that at that time. I may have, that could have just been part of it. It wasn't that separable from other concrete work we did. I guess you could say I did.

Storey: And how long were you there?

Towles: (sigh) Let's see, I must have been there about a year or so, because I believe I went up to the Trinity Project[6] in Northern California in '56. I think I stayed at Trinity from '56 to '62. I went to Los Banos with the San Luis Project– and boy, I'm guessing now – from '62. I was at Los Banos from '62 to '72. Then I went to Texas on a job from '72 until '81 or '82, something like that. So anyway, I was at Lindsay until '56, because that's when I transferred to the Trinity Project in Northern California.

Storey: And all of your time at Lindsay was . . .

Towles: Working on the Friant-Kern Canal or various features associated.

Storey: And construction inspection and that sort of thing.

Towles: Construction or surveys, stuff like that.

Storey: Where did you live when you were working at Lindsay?

Towles: I lived in the government camp for a while at Lindsay, and then we rented a house in the town.

Storey: Who's we?

Towles: My wife and I. I got married somewhere along the way. (laughs)

Storey: Do you remember when?

[6] Surplus water from the Trinity River Basin is stored, regulated, and diverted through a system of dams, reservoirs, tunnels, and powerplants into the Sacramento River for use in water-deficient areas of the Central Valley Basin. Water is used for irrigation, power generation, navigation flows, environmental and wildlife conservation, and municipal and industrial needs. For more information see, Eric A. Stene, "Trinity Division: Central Valley Project," (Denver: Bureau of Reclamation History Program, 1996), https://www.usbr.gov/projects/pdf.php?id=108.

Towles: I'd better! In '51, before I got out of college.

Storey: Where did you meet your wife?

Towles: She worked for the Bureau. I went to high school with her in Friant. Then we got married and she worked for the Bureau for a while. And then she went with me when I went to college, and then when I got out, we moved back to the government camp there at Friant. And then I did that work there, and then she transferred to Lindsay. Then we transferred to Trinity.

Storey: What kind of social contacts went on in a construction camp like Friant or Lindsay for married people?

Social Life in Construction Camps

Towles: Oh, I think most of the people were young people – most of them professional people, graduated from various colleges and various engineering. It was a *good* relationship. It was close, a lot of employee association-type activities: picnics and all kinds of sports and things like that. Baseball teams and like that.

Storey: Did the wives have any special activities that you remember?

Towles: They were all well-acquainted and worked well, had the various social activities.

Storey: You mentioned that it was sort of like the military at this time. Did that military pattern carry over to the wives, the project engineer's wife sort of ran things?

Towles: No, I wouldn't say . . . I can't recall that. I think they probably were looked-up on. See, I was quite young in those days, so I was a beginning engineer and so forth. I wouldn't really know how that upper level would play, but I think everyone certainly respected the construction engineer, the office engineer, you might say the "brass," the management. But not in such a way that the women ran the camp or the women did anything like that. I don't recall it.

Storey: Were there dances?

Towles: Yeah.

Storey: There was a recreation hall?

Towles: Recreation hall.

Storey: What was the recreation hall used for?

Towles: Well, it was odd, they couldn't build a recreation hall, so we called it the . . . When we'd have bid openings for all these big contracts, that was done at the big hall. I forgot – "community center" or something. And then when it wasn't used for that, it was used for dances and get-togethers, potlucks and things like that.

Storey: Sort of the whole camp would be invited?

Towles: Oh sure.

Storey: You know, I got sidetracked. At Friant, back in the early days, when you were in the house, did it have indoor plumbing?

Towles: Yes.

Storey: And it had indoor bathroom and all of those sort of modern . . .?

Towles: Modern fixtures, yeah.

Storey: Was it different than the surrounding community?

Towles: No, about the same, although when they were building the dam, as again it was during the Depression and before the war broke out, a lot of people lived in tent houses along the river, things like that. But then there were a lot of established . . . The town was only maybe two or three hundred, or maybe a hundred. It wasn't any real big town, post office and a filling station and things like that. Then when the dam was being built, it exploded with all types of people coming in to work on the project. And a lot of those people lived in tent houses and things like that, down on the river. The government came in and built this camp up on the hill there, so we did have . . . And so, I'd say it was a cut above maybe the town.

Storey: The construction camp, was it for Reclamation employees only? or was it also for contractors?

Towles: No, Reclamation only.

Storey: Where did the contractor's folks live?

Towles: They built houses around in the community – not in the government camp.

Storey: Same thing at Lindsay?

Towles: Lindsay was a camp within a city, on the outskirts of the little community of Lindsay. They bought some land and they brought in trailers and they built some permanent houses. Summer kids like myself would live in the trailers and things like that – sort of the overflow. The people that were involved permanently there doing that Bureau work and so forth, lived in the houses.

Storey: You mentioned earlier that most of the people you'd been raised with were engineers. Another time you mentioned that the professional character of the people you were living with. How would you characterize the population of the camps as opposed to the population of the surrounding areas?

Towles: (sigh) Well, a lot of it depends on what location you're speaking of. At Friant, for instance, where, as I say, there wasn't hardly anything there before we moved in, so the surrounding would be people that were ranchers and things like that, and maybe a few people that ran the service station or the post office or the general store. Definitely a different type of people. The government people were probably professional types – more educated, probably a lot less affluent than maybe some of the ranchers that owned a lot of land around there. These are working people versus the people that were ranching and so forth.

Storey: Same thing at Lindsay?

Towles: Lindsay was in a town, so now you have townspeople who had stores and an established community there. So, there you had a cross-section. But all-in-all – and I think this is true darned-near everywhere we went – the Bureau people were probably much more technically-educated, they were professionals. I don't want to say they were a higher class – probably didn't have near the range or scale of, you know, from labor up to a real professional . . . Most of these people were all about the same. You had professional people, and then you had technical type people that may not have had a degree but were certainly very competent.

Storey: You mentioned that you were in Lindsay for about two years, I think.

Towles: Uh-huh, I think about that.

Storey: Why did you decide to move?

Towles: New construction job opening up in Northern California, and just the desire to move on to another big job. This was a dam, Trinity Dam, and all of the features that went with it. And just made you want to go. And so, we did.

Trinity Dam

Storey: Did it take you a long time to land a job at Trinity?

Towles: Oh no, had a job before I even went up there. That's the way it'd work. You'd contact the construction engineer. Oh! we went to the Regional Office in Sacramento, said, "I'm interested in transferring to Trinity. Do you have anything?" And they'd say, "Yeah," and you say, "Well how about a promotion?" And they would say, "No, no promotions. You can go just in grade." "Aw, no." So, you play around trying to get a promotion out of it, and if you couldn't, you'd just take it and get up there, because you knew there was probably opportunities for a promotion at a later date, as a job opened up. So that's the way you work it.

Storey: So, when you moved up there, what were you doing?

Towles: Worked in the lab as an engineer in borrow pit investigation of materials for the dam, looking as close as we could get to the dam, suitable materials. We were auguring a lot of test pits and things like that. We had our own drill rigs and we'd let contracts to bring in special equipment to look for material that we could build the dam out of.

Storey: So once again, this "lab work" was field work?

Towles: Uh-huh.

Storey: But did it change from your prior experience with that? Were you now doing field work and then going back to the lab and doing tests, or anything like that?

Towles: No, I did the same procedure. It would be the same procedure.

Storey: So, there was somebody else in the lab doing the tests?

Towles: Yeah, running all the tests. Exactly. We'd go out there and get the materials and lay out the investigation map. We'd have a map that we'd develop, and what you normally *tried* to do is get material that you needed of various types of material to build a dam with – Try to get them as close to the dam as possible, for economic reasons. You didn't have to haul the material so far. And so, you'd look for various types of material, and then the people in the lab would run the tests to see if they were suitable, and if they were, then you need to know how much of it do you *have* out there? Is it enough, or do you have to go find some more? It's quite a procedure to go through.

Storey: If you would, would you take me through the procedure? What kind of construction was contemplated at Friant? What different kinds of materials did you need, and why?

Determining Construction Material

Towles: Well, on a canal you need – to make concrete, you need your aggregate materials. Most of those are in river bottoms – wherever streams have run would be where your gravels are. So, you're looking for material for concrete, and it's hard to auger a hole in gravel, because the hole caves in, so there you dig test pits, and you shore them up and you go down. So, you're looking for the types of material; then you're looking for how much of that material do you have available? Sooner or later, you may run into bedrock, and that material only may be fifteen feet deep, or it could be a *hundred* feet deep. So, you need to know how much material you've got. And how good the material is: Does the rock crush easily? or is it a good stable rock? And so, you're looking for all the properties of materials. And then for the embankment, you're looking for clays. And you don't want to get what we call "fat clay," that will expand and contract when it gets wet. You're looking for "lean clays." And so, you're looking for *that* type of material. And then when you find all these materials, those maps and the depth of the material and the types of material all go into a specification, then the contractor bids it. And then he knows when he bids this job, he can go out there at this location, he can get this kind of material because the logs of that borrow area where he's going to work, shows these materials at various depths. So that's kind of the preliminary work they do.

And then on a dam, you know, since this is an earth dam, you know what the center of the dam, the core, has to be a good clay material, something that won't seep water. Then as you progress on the outside shell of the dam, you go from clay to sort of semi-impervious to impervious materials out here, and rock. So, you're looking for a whole *range* of materials for that dam. And again, you're looking for the quantity, the durability, and then you need them on a map so a contractor knows how far he has to go to get the material, how far he has to haul it to the dam, and things like that.

Storey: And you want an ideal combination that provides you the best quantity of material at the least cost.

Towles: That's right. And a lot of times, after your investigation has gone on, the designers may say, "Well, you know, based on this material, we're going to design this type of a section, a cross-section of a dam." It may be flatter slopes, or it could be steeper slopes. They try to match the design of the dam with the material that's

available. And so, the designs of dams vary with respect to what's in the vicinity. That's the kind of work you do on "pre-construction" they call it.

Storey: Okay. Could you walk me through *another* scenario here? You're at Friant working on locating materials, and you identify certain types of clay, soils, aggregates, and so on. Who is then designing the dam?

Towles: That was done in Denver, mostly, although some of the more simpler design would be done there at Friant or at various locations. They had design engineers there, but the heavy design, the big designs, were all done in Denver.

Storey: And how did the project relate to Denver? Was that done directly? Was that done through a Regional Office?

Towles: No, it was done through the Construction Office to Denver. The close relationship of the design work with respect to the field was established. You didn't use the Regional Office much at all. In fact, in the early days, they didn't even *have* Regional Offices – it was strictly Project Offices to Denver.

Storey: Yeah, I think the Regional Offices were established in '42, maybe.

Towles: That sounds about right.

Coordination between Reclamation Offices

Storey: But how would . . . When you were at Friant – if you can separate it out from all your other experience with regional offices – how did the project and the Regional Office and the Denver Office and the Washington Office relate to one another?

Towles: Huhhhh, a lot of this I'd have to guess, because you have to remember where I was in the structure. But I believe that – in fact, I'm positive – that the Denver Office had the Chief Engineer, who at that time was [Grant] Bloodgood. He was the one that all the construction people took their orders from, and he worked right with the construction engineer at Friant. Bloodgood was over *all* of it, and he had his designers and his field people, so he was the Big Boss, and so that's the way that chain worked up and down.

Storey: And so, it worked really basically to the Construction Office.

Towles: Uh-huh.

Storey: What say did the Regional Office have in all of this?

Towles: Well, as you say, I don't even recall the Regional Office . . . I'm guessing just – and I don't know this much about it for sure – but I'm guessing that somewhere along, the decision was made to come up with regional offices. And I imagine it was due to economic reasons or whatever. So, then you started to see more of a play of a Regional Office getting involved – usually in the personnel side. And so, I can remember a *lot* of times where . . . Well, it wasn't that unusual where in construction you had two bosses. One would be the Construction Office in Denver for the technical, and then the administrative part of it would be handled out of the Denver Office.

Storey: You said both would be handled out of the Denver Office?

Towles: I'm sorry, out of the Regional Office – the administrative side would be handled out of . . .

Storey: Out of the Regional Office?

Towles: Yes, correct.

Storey: So. when you first went to Trinity, you were working on location of materials and surveying, is that right?

Trinity Dam Construction

Towles: No, it was mostly lab work.

Storey: Okay. Did that job evolve into something different?

Towles: Then I went into construction inspection and administering construction contracts.

Storey: Were you still working on conveyance systems?

Towles: Working on the dam, Trinity Dam, then in the Clear Creek Tunnel.[7] We had a twelve-mile tunnel or so. I think it was twelve miles. And I worked on that, shift work, with the construction contractors.

Storey: And what were you . . .

[7] "Clear Creek Tunnel, 17.5 feet in diameter and 10.7 miles long, conveys up to 3,200 cfs from Lewiston Lake to Judge Francis Carr Powerhouse and Whiskeytown Lake. It is the conduit for the trans-basin diversion." See, Trinity River Restoration Program, "Diversion Facilities and Operations," TRRP: What is the TRD? (Accessed 6/2022)

END SIDE B, TAPE 1. MARCH 31, 1994.
BEGIN SIDE A, TAPE 2. MARCH 31, 1994.

Storey: This is Tape 2 of an interview by Brit Storey with Robert Towles on March 31, 1994. So, you were working on the . . .

Towles: Clear Creek Tunnel was one of them. I was a shift inspector. We would inspect the boring of the tunnel or the excavation of the tunnel. We would log the rock that we encountered, make records of everything we encountered. Then all the materials that were put in to stabilize the rock, we accounted for it for pay quantities. And then when we started concreting it, we inspected the concrete work and accounted for all the materials that were involved in that, so for payment. And that was our work.

Storey: And did you serve as an inspector through the entire construction of the tunnel?

Towles: Yeah, I would say I was there, I wasn't on that one hundred percent of the time, but during a good portion of it I was. And as I say, like one year I may be up at Trinity working on the dam. And then the next time maybe they'd put me down there on the tunnels, to work in the tunnels.

Storey: So how long did it take to construct the tunnels, do you happen to remember,

Towles: No, I don't. I was at Trinity from '56 to '62 – that's six years – and I was on the dam a couple of years. I'm going to say four years on the tunnel, but I'm not sure of that. And there were numerous tunnels: there was the Clear Creek Tunnel, then there was a Spring Creek Siphon that was a big siphon that connected these tunnels to another powerhouse – it was quite a complex system.

Storey: Did you do anything else while you were at Trinity?

Towles: Well, just various construction activities and things like that.

Storey: But construction inspection things?

Towles: Uh-huh.

Storey: What caused you to move from Trinity?

San Luis Project

Towles: Well, by that time it was '62 and they were starting a new job in Los Banos, the San

Luis Project. And so again it was the thrill of going to another new job. And so, we packed up and went there.

Storey: Did you get a promotion to go to the new job?

Towles: Let's see, I was chief inspector for the tunnels, probably a G-S-12. I think I went to San Luis for a 12, but I think it was the idea that I'd become – I would have good consideration for assistant field engineer. So, it wasn't a promotion per se, but it was the opportunity for one.

Storey: And what were you doing there then?

Towles: At San Luis?

Storey: Yes.

Towles: Again, started off on looking for materials for the dam. (chuckles) And then I got promoted to assistant field engineer, and there I was involved in construction.

Storey: Now, at Trinity you were looking for materials for the dam. And at Los Banos you were looking for materials for the dam, but you have gone from, what, maybe about a 7 or a 9 to a 12?

Towles: Yeah, to a 12.

Storey: Had the nature of your work changed?

Towles: No, I took on more responsibilities, rather than being out there on the drill rig or all doing, now I was up here in management or supervision, and had various people doing the same thing I did on the previous work. Now they were working for me, who in turn I was working for the field engineer.

Storey: So, you had shifted into a supervisory position, and not spending as much time in the field, probably not nearly the same time.

Towles: Oh, I was in the field, I'd say the majority of the time, but I wasn't actually sitting there doing the work – I was overseeing the work.

Storey: Okay, good. And then you went from locating materials to what again?

Towles: Construction of the dam – inspection work.

Storey: And you were inspection work again?

Towles: I was assistant field engineer, who had the responsibility of all the labs, all the lab work, all the inspection work, all the survey work. And so now I'm up at that level.

Storey: And that would be a G-S-13 maybe?

Towles: Yeah, I think I was a 13 there. Right, I got up to 13. Yeah. I think I was a 13 at . . .

Storey: What kind of dam construction was used at San Luis Dam?

Towles: That'll be quite similar to Trinity, except that it was a much larger dam, as far as quantity – it just stretched out longer. Trinity was higher, but I think we had something like – I kind of want to say eighty million yards, maybe it could have been a little bit less, but it was a large earth dam.

Storey: Let's see, I don't know these terms, so if I offend your engineer's ears, I know you can correct me. A compacted . . .

Towles: Compacted embankment dam. All dams are compacted.

Storey: So, what were you doing to inspect the work?

Towles: Well, we had every yard of material that goes into a dam is inspected. It is inspected to make sure it meets the gradation or the standards for the material for the zone it goes in. A dam is zoned: the core, and then as you go out towards the outside of the dam, it changes in materials, so you be sure you get the right materials in the right zones, and you're sure that the material gets packed to a certain density. It's quite involved. It's a *lot* of work.

Storey: And how do you . . . Okay, let's start with how do you make sure the right materials are going in the right place? Is that done by eye?

Towles: By eye and you know what part of the borrow area that the material is coming out of. In other words, you know through your field investigation the type of material you've got out there. And so, you know if you want sandy material in a particular zone, you have equipment that is working in this particular area that will give you sandy material. So that material is hauled up to the dam, and then its deposited in certain depths, maybe a foot depth, and then it's rolled twelve times, back and forth, and watered to a certain compaction. Then you come in and take densities in that material to be sure you achieved what's required. And then when it's okay, you go say, "Okay, go up another lift." And you do the same thing again. You check it

and then go up another lift. And that's how you're sure of what goes in the dam.

Storey: So, there's somebody actually standing out there?

Towles: Oh yes.

Storey: Or should I say there are several somebodies standing out there?

Towles: Oh yes, different people on a shift. Some are watching the borrow area, some are watching a particular zone, some watching the abutments of the dam, when you tie it into the hill you have to have special compaction around the rocks and was watching that. A shift on a dam, for instance I can recall you'd probably have a half-a-dozen people out there.

Storey: How many people altogether would you have?

Towles: You mean . . .

Storey: Well, if you have six people on a shift, how many shifts?

Towles: Well, you have three shifts, but you have so much of a support staff. You had a staff in the lab running all these tests, you have lab people coming out and taking densities on the fill. You had surveyors out there being sure that the dam is being constructed in the right location and the zones are in the right location. I can remember the field office I think would have, at San Luis for instance, that was a big job, we may have had a couple hundred people.

Storey: This was for the inspections?

Towles: Inspections, surveys, and lab. The whole thing.

Storey: Making sure that it was properly constructed.

Towles: Right, everything, right.

Storey: And you reported to a project manager?

Towles: I reported to the field engineer, and he reported to the construction engineer.

Storey: And who did the construction engineer report to?

Towles: He reported primarily to Denver, but also to the Regional Director.

Storey: So, the construction engineer was in effect a project manager?

Towles: It would be true, uh-huh.

Storey: And I gather with three shifts, what we're talking about is working around the clock?

Towles: Right.

Storey: Which also might imply seven days a week?

Towles: Usually it's six days – five or six days a week. A seventh day would be used for working on the equipment. And not all functions would work six days a week. I think if the contractor was on schedule and it was a long job, you wouldn't work all Saturdays – you'd probably work five days a week on some features, such as concreting maybe; or if it was behind, it would be a six-day, and something else would be five-day. But then the maintenance was done on a Saturday and a Sunday, in general.

Storey: Maintenance?

Towles: Maintenance of the equipment.

Storey: Of the equipment, okay. I interviewed Frank Dimick[8] last week, or two weeks ago, I've forgotten which now. And he worked on the San Luis Canal, and he was single at the time. Told me that he earned as much in overtime as he did on regular time, for instance. Was that normal for Reclamation employees?

Towles: I think so. I don't think – it's maybe not normal for *all* the employees, but it all depends on where you are. If you're on a canal-lining job, like he probably was on . . .

Storey: Yeah.

Towles: . . . a lot of times the contractor worked ten hours a day. And so, it was much cheaper to, since you had to watch it all the time as to puts a personal ten hours a day. So, he got that overtime. Now if it's like a six-day-a-week job or something and you have surplus people elsewhere, you might bring in and split the shift, to

[8] Franklin E. Dimick participated in Reclamation's oral history project. See, Franklin (Frank) E. Dimick, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation oral history interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, from1994 to 1995, in Sacramento, California, edited by Brit Allan Storey, 2011, https://www.usbr.gov/history/oralhist.html.

where you could bring in somebody. Or on the other side, if you're tight on employees, F-T-Es [full-time equivalents] and so forth, you may let them work the same hours as the contractor, which again is a lot of overtime. It varies with respect to the situation. But yes, I'd say on construction a person had to be out there. It made a lot of overtime.

Storey: And those kind of scheduling decisions were part of your job?

Towles: Yes, for the government employee it was. They were based on the contractor's decision: how he bid the job and what his situation was. A lot of times he'd want to hurry up and get in there and get rid of a job, so they bid other work. Or sometimes they had no other work and they just let it drag out, and so they would work maybe only five days a week, and *no* overtime. So, it'd depend on the contractor's time frames and so forth. He had to finish the job within a certain period of time. Maybe our specifications would say the job had to be done in a year, or two years. He'd look at a situation and if he wanted to finish it early, he'd work a lot of hours. If he didn't care, he'd drag it out to the full time. And we then would schedule *our* people to match his schedule.

Storey: What kinds of issues and problems did you run into in inspecting the construction at San Luis? Do you remember anything?

Inspecting Construction

Towles: Well, it was no different there, I don't think, than anywhere else. It's the same thing. Our specifications are the designers design the structure to meet certain specifications – the dam or whatever it is, the bridge or the canal, anything. And so, the inspector has to assure that the contractor builds the structure in accordance with these designs. And so that's why his primary job is out there. So, you always run into issues, you know, "Well, is this good enough or isn't it good enough?" Especially when you get into foundations. In other words, the structure is designed to fit on a certain type of foundation based on all these drill holes we put in. Well, when we get down there maybe, a hundred feet and find out that that drill hole we showed in the log was just for that one spot – a foot over is entirely different. So now there's the decisions to make, along with the designer, of whether or not the foundation is adequate. Sometimes we have to go down deeper, sometimes we have to change the design a little bit – it's all those kind of things that go on.

Storey: And then when that happens, you have to deal with the contractor?

Towles: Yeah, and changes. That's right. They were different than what they showed in

the spec. And you always have changes. So now it becomes an equitable settlement on how much is that change worth? And how does it affect his schedule? If he's going to have to excavate down another twenty feet, ten feet, or whatever, it's going to take him longer. Now that's affecting his finishing of the job. So now we got a ripple through the whole job, based on the fact that we had to go down deeper or do something out of the ordinary. And of course, the contractor plays that up as, "Gee, this is the worst thing that could have happened to me. I wanted to get out of here quickly, you've held me up, now you've got all this!" And so now you're trying to weave through all of this maze of activities. Inspection is much more than sitting out there and watching somebody put a hole down.

Storey: I've forgotten the exact title: Assistant construction engineer was that?

Towles: I was assistant field engineer.

Storey: Assistant field engineer. Was it your responsibility to be the contracting officer?

Towles: No, by that time we assisted the . . . Well, we changed somewhere along the way. At that time, I would say we were probably the contracting office, yeah.

Storey: So, you were making the changes?

Towles: We were making – along with the designers in Denver, or whoever the designers were.

Storey: But you were authorized to make the change.

Towles: Uh-huh.

Storey: And were there a lot of changes at San Luis?

Towles: I wouldn't say there was any more than any other job. There were changes, yes.

Storey: That's just part of being . . .

Towles: That's part of it, yeah.

Storey: . . . on the project.

Towles: Right.

Storey: So, it would be normal to change the contract?

Towles: Oh yeah.

Storey: I mean, routine. Is it so routine that it usually went fairly quickly?

Towles: Yeah, I think so. I don't think there was any . . . The contractor would always want the changes quickly. A lot of times we had to redesign something that since its further down in the ground, now we got to add more re-steel to get up to the same point up here. Things like that. It was something that you didn't just say, "Okay, good enough. Now we'll start building the same thing." You got to have more of this, more of that, more so forth. So, it took time, but usually it didn't stop anything. And if it was a *really* critical activity, we usually threw in all the help we could get in design and whatever to try to get it out as fast as we as possible.

Storey: So, this would involve bringing people in from Denver?

Towles: Or they'd come out, usually, if it affected their design to any *appreciable* amount, they would come out and look at it, and they would make the change and they'd go back and draw it up, draft it up, and we were on our way.

Storey: Do you have any feel for how long that would take in a fairly routine . . .

Towles: It would vary. It would really vary. You could have very minor changes that you wouldn't even involve the designer in, you'd just change them yourselves, based on what you know were acceptable previously. You could have changes that you had a conflict or a problem, a water problem, and you got down there and maybe there was a lot more water than you had expected, groundwater, which would just be *tremendous* changes: Wells have to go in to try to dry up the foundation. Those would be tremendous. But I'd say your normal change you can handle within thirty days, and I'm just grabbing that number out of the air.

Storey: Did you move to another position while you were still at Los Banos?

Position Changes

Towles: Oh, I got to be field engineer (sigh) and then I got to be acting construction engineer.

Storey: What's the difference in responsibilities between those positions?

Towles: Field engineer is just being responsible in the same things that I was as an assistant

field engineer – I just got to be the person that had that responsibility, so there wasn't that much change there. You had to be . . . There was more working with Denver and working with the regions and things like that, more on sort of the administrative and the design part. As changes occurred or as you needed more people help, things like that – that got to be more of that. Whereas as *assistant* I was dealing more with the hands-on type every-day work. Now I'm dealing with more forecasting, more budgeting, more this and that. And then when I got up to be acting construction engineer, or project engineer or whatever you call them – then it got to be more of total design and office engineering and right-of-way and personnel, and all the other things that go along: all the support function, property, all of that. That's where that came from. That's when I was fun left the job.

Storey: Pardon me?

Towles: That's when the fun left the job and now you're starting to get a lot of that support headaches, you know.

Storey: Uh-huh. Was there more than one assistant field engineer?

Towles: No, I was the only one on the dam. We had a canal group that was another group, that was under the project construction engineer. They were building the San Luis Canal,[9] and it was heading towards Coalinga.

Storey: But that wasn't under the field engineer?

Towles: No, not under the field engineer for the dam. I should say field engineer for the dam.

Storey: Oh, okay.

Towles: Then you had a field engineer for the canals, and that was another group.

Storey: During your career up to this point, you had worked on both conveyance systems and on dams.

[9] "San Luis Canal, a segment of the California Aqueduct, begins on the southeast edge of O'Neill Forebay and extends about 101.5 miles southeasterly to a point near Kettleman City. It substantially parallels Interstate Highway 5 located on the western side of the San Joaquin Valley at the eastern flank of the Coast Ranges. Water from the canal serves the San Luis federal service area, mostly for agricultural purposes and for some municipal and industrial uses. SWP (State Water Project) water is conveyed through the San Luis Canal to Check 21, where the joint-use facilities and the California Aqueduct continues. The canal was constructed from 1963 to 1968." See, California Department of Water Resources, "San Luis," San Luis (ca.gov) (Accessed 6/2022)

Towles: Uh-huh, tunnels.

Storey: Did you have a particular preference?

Towles: No, not really. I think I enjoyed dams more because you didn't spend so much time traveling. When you follow a conveyance system, that thing gets further and further away, that you spend more time driving *to* it; where a dam, its usually near your headquarters. You put your headquarters near the dam, and so you go right out there and you're at work, quickly, whereas on the canal or conveyance system, you're driving sometimes an hour or two just to get to the site where all the work is.

Storey: As you went through these positions at Los Banos from assistant field engineer to field engineer to acting construction engineer, was there a change in the amount of time you spent in the field as compared to in the office?

Towles: Oh yes, as I got up more in the acting construction engineer, I spent probably half as much time out in the field as I did before. Now I've got responsibility for . . . When I was acting construction engineer, I also took over the activities of the canal system. Now it was virtually completed, so all I was doing was kind of cleaning up all the activity. We had a lot of smaller activities going on, so it wasn't near as important or prestigious a job as it would [be] during the time of the peak construction.

Storey: Now, was acting construction engineer your last position at Los Banos?

Palmetto Bend Project

Towles: Right, then I got transferred to Palmetto Bend in Texas, on a dam there to be construction engineer on that dam. That's when I became *construction* engineer. So, I went from acting field engineer to field engineer to acting construction engineer to construction engineer at Palmetto Bend Dam.

Storey: Uh-huh, and the same responsibilities held true at Palmetto?

Towles: Yes.

Storey: What kind of a dam was Palmetto Bend?

Towles: It's in Texas, right around Edna. It's in the vicinity of Edna, Texas, which is about half-way between Houston and Corpus Christi, right down along the Gulf [of Mexico]. That was, again, an embankment dam, along with a lot of concrete work: spillways and so forth. Really unique area as far as you had tidal effect from the

Gulf, you're in a hurricane area, you're in the swamps. It was really an exciting type job, very interesting.

Storey: What kinds of special engineering issues?

Towles: Probably it'd be the same type of engineering that I use elsewhere that I've learned through the time, except you apply it to a different location, and more *of*. For example, groundwater was a big problem, or the effects of the Gulf of Mexico on you. Then you had hurricanes and high tides. Kind of a different way of doing business. We were working below sea level, to get down to the core of the a dam, or to the foundation that we wanted to build a dam on. We went down probably thirty or forty feet below sea level. And then we started up with the dam. So those kind of things I didn't run into elsewhere, but we had good designers in Denver, and they would work with you and help you learn. And then based on your field knowledge, it made a good combination.

Storey: You mentioned hurricanes. Why would hurricanes be of special concern?

Towles: Well, that raises the elevation of the river. The tides coming in from the Gulf would raise the river elevation, and so the rivers were . . . And then they'd bring in, of course, heavy rains. Our rainfall there was around forty inches a year, and we'd get nine or ten inches of rain just on a weekend. So, you had that constant unsettled weather and things like that.

Storey: The water is a problem for that type of dam?

Towles: Uh-huh.

Storey: So, what kind of special design had to be done to meet those issues?

Towles: Well, I think the slopes of the dam were flatter. In other words, the dam would be spread out over a bigger area. Your construction was handled differently. You didn't open up big areas because of the rain that would come down. You would open up small areas, and then what you say is you would seal the embankment when you got through at night. You'd run rubber-tired equipment over it to seal it real tight, so water, when it did rain, it couldn't get into it. And then when it quit, you'd come in and peel off maybe an inch or two off of that and then start up again. You just had to really – your construction methods were just entirely different.

Storey: Were there any other special features in them that you remember?

Towles: No, not really. You were constantly fighting groundwater problems and things like

that. Had to do a lot of de-watering before you could get down to your elevation to begin your structure work, things like that.

Storey: You mentioned swamps, and to me a swamp is a place where there's just constantly water. So, did it come back again?

Towles: Well, you would come in and you would enclose the area you wanted to work in, with a dike, with an earth dike of some kind, fill it in. Then you would de-water the center of it within that confined area, and then you kept your pumps running all the time so you could get down to a suitable foundation. And then you started to build your structure up from that until you got up above the groundwater. Then you could shut your pumps off and go on up higher. So that's the way you worked in the swamp. We had a lot of that. A lot of snakes, a lot of alligators – it was an interesting job!

Storey: Alligators?!

Towles: Uh-huh.

Storey: And snakes? Did we have problems with those?

Towles: No, not really. I don't think we had anybody that was bit by the snakes. We had a lot of snakes.

Storey: What was the purpose of Palmetto Bend?

Towles: Well, what it was doing was, providing municipal-industrial water for the various petrochemical plants up and down the Gulf. That was the intent.

Storey: So, did we also build a conveyance system?

Towles: We didn't, but the River Authority, that sponsored the project, they did after we left. All our job was, is to build the structure. And then they took it from there and delivered the water to maybe fifteen, twenty miles away.

Storey: What river authority was it?

Towles: Lavaca-Navidad.

Storey: Did you work with them?

Towles: Oh yes. They were right there with us. They had a few people on the site, more or less working with us as we constructed.

Storey: Were they looking over our shoulders? Were they liaisons?

Towles: Oh, I think in a general term. They didn't have inspectors out inspecting *our* inspectors, but they definitely tracked the progress, and any big changes they were interested in because they had to repay the feature.

Storey: Were there any controversies about repayment issues? "We don't think you need that"?

Environmental Issues at Palmetto

Towles: No. In fact, the opposite. I think they wanted to be sure that it was built correctly, in that they didn't want to be stuck with a large maintenance of something that we would think, "Oh, that's good enough. Let the maintenance people take care of it later on." They didn't want any of that. They wanted a first-class structure, and we gave them a first-class structure, and they paid for it. I mean, I think they've got all the water sold, I think it was a successful job, but it had its turmoils. The Sierra Club sued us and then won us down there. We had trouble with Fish and Wildlife and the marine fisheries and the effect of the structure on the Gulf and all those kind of great things.

Storey: And were you involved in all of that?

Towles: Yes.

Storey: Did you participate in meetings with Fish and Wildlife Services Czar?

Towles: Right.

Storey: What were they in particular concerned about?

Towles: Well, they were worried that the water that we would be impounding was going to have an effect on the estuary downstream and that it was going to be doing harm to the marine fisheries. And also, just the total environmental-type movement. And it's interesting, the landowners that were going to be affected didn't want to sell their land. Of course, all of a sudden, they became environmentalists. So, they would side with all the Sierra Club and all *that* group, and frankly they could care less about the environment, but they wanted to stop the project. And so, we went through a trial and received a federal judge ruling that we were okay, and we went on with the structure. But it probably delayed us a couple of years.

Storey: What was the suit about specifically?

Towles: I think it was primarily the fact that we were going to endanger . . . Well, it was all based on the environmental movement. And so, we had to get a 404 Permit that would allow us to build it across a stream. And then [they] say we didn't do good studies and so forth. And we said we weren't going to affect the downstream estuaries and so forth, and they said we would. So it was that same old thing. They use all of the various permits to throw into opposition. And really, I think they probably knew we weren't going to do anything damaging, but it was a way to stop it. They didn't want it built. So, we had to go through all of this.

Storey: For instance, on the estuaries, were they arguing that we weren't letting the natural water run through, or what.

Towles: Right. In other words, we would store too much water, which in turn would affect the releases that we were making and so forth.

Storey: So, there wouldn't be enough . . .

END SIDE A, TAPE 2. MARCH 31, 1994.
BEGIN SIDE B, TAPE 2. MARCH 31, 1994.

Storey: So, there wouldn't be enough fresh water released.

Towles: Fresh water released. And we said there would be. Finally, the judge felt that our designs and all of our, oh, knowledge of it and so forth was sufficient and go ahead and let us go.

Storey: Did the National Environmental Policy Act play in all of this?

Towles: Yeah.

Storey: Was noncompliance with that one of the issues?

Towles: Uh-huh.

Storey: What did the judge say about that? Do you happen to remember?

Towles: I just remember that after the hearing and everything that went on for months and months, he ruled that we had met all the requirements and allowed us to do it, to go ahead.

Storey: Did you have to testify during that trial?

Towles: Yes.

Storey: Could you characterize that experience?

Towles: Well, I guess looking back on it, so many things they brought up is the fact that they're trying to tell you what was going to happen if you did this, or you did that. And frankly, they had no idea for sure what it would be, but they always had a lot of concerns, and they were playing on that. And we'd have to testify how we obtained the knowledge or the information to make a decision on how much water would be coming down the river, for instance the hydrology of the river. And they would question that, and we'd have to go through all of the various steps we went through. And we'd have experts testify for us. They'd have experts testifying against us. It was just everybody go out and get them an expert and we'll all testify! And Jesus, get two university professors; one will say one thing, one will say another, and they both had all the credentials in the world. But that was sort of the way the game is played.

Storey: What was *your* role in relation to this suit? As construction engineer were you coordinating all of the . . .

Towles: No, really the coordination for the lawsuit was done by the Justice Department. They represented us. We gave them data. They called the shots on the approach to fight the suit. We had a close working relationship with the Justice Department. And they'd think, "Well, we're weak in this area, we probably need more information." And so, we'd go out and either try to get it or something to bolster our position, and things like that.

Storey: Did we have to pay any construction penalties or anything while all of this was going on? Do you remember?

Towles: No, I don't. I think the penalties would have been the fact that delayed us, which in turn the overhead of all the delay of a few years' overhead of all the people there having to fight this, and all the work we went through to fight it was probably the big cost. We hadn't let the contracts yet. This was . . .

Storey: So maybe inflation would affect the cost of the dam.

Towles: Inflation and slowing down and everything. I have no idea what that dollar amount would be.

Storey: Is Palmetto Bend a big project, a small project, medium-sized?

Towles: It's a pretty good-sized project. Yeah, I'd say it was – I don't remember now, but . . . I'd say maybe half-a-billion dollars, five hundred million, three hundred million,

something like that.

Storey: To whom did you [report?] as construction engineer?

Project Overseers

Towles: To the regional director in Amarillo, Southwest Regional Director, and also to the Denver Office. I had two bosses, you might say; one on the technical side and one on the administrative side.

Storey: Who was the regional director at that time?

Towles: Well, we had a couple of them. We had . . . [James A.] Bradley, Mr. Bradley was one of them. And then we had Mr. [Robert H.] Weimer was the one after Bradley left. And in Denver at that time, we had . . . Oh God, Grossklaus [phonetic spelling], Mr. Grossklaus was head of the construction side at the Denver Office that we reported to on the technical side.

Storey: How were these folks to work with?

Towles: Very good, very good, had no problems.

Storey: Had management changed from when you first came to Reclamation?

Towles: Oh, it was changing, yes. It was changing every year. The administrative for the regional directors were starting to play more of a role than the way it was in the past, where the Denver Office and the chief engineer was the controlling – They controlled everything, and then the regional offices were established. And now we're starting to see the support, the administrative side, becoming more and more involved.

Storey: Do you remember anything in particular about Messrs. Bradley or Weimer?

Towles: He [Bradley] was an electrical engineer, regional director, came up through the engineering side, very good to work for, very competent, very professional, excellent person.

Storey: Was there any hydro-component to Palmetto Bend?

Towles: No, no hydro.

Storey: You were the construction engineer throughout your stay in Texas?

Towles: Right, uh-huh.

Storey: Where did you decide to go next?

Assistant Regional Director

Towles: Well then, we finished the job, and then I went to the Regional Office as assistant regional director. Bradley had retired, and so they brought me in to be assistant regional director and Bob Weimer was the regional director at that time. And so, I stayed there for a couple of years, I believe, as assistant regional director, I'd say for a couple of years.

Storey: Did you go through any management training programs while you were down at Palmetto Bend?

Towles: Only the types that everyone else kind of went through. You know, we went through various participative management type get-togethers for a week at a time, and things like that – nothing special.

Storey: What was going on while you were in Amarillo? What were the interesting projects and things?

Towles: Oh, we were building . . . We had finished Palmetto Bend Dam. We were building Choke Canyon Dam[10] over by Three Rivers, Texas, which is outside of Corpus Christi. Then we were building McGee Creek Dam[11] in Oklahoma. And then we were doing a lot of work with the existing structures that we had built in Oklahoma and around. And we were doing some work in New Mexico. So, my job was supporting the regional director, and I kind of oversaw the construction side of it for him, from the regional perspective. And that was about it.

Storey: What was the regional perspective at that time?

Towles: Well, it would be just about what it would have been before, with respect to supporting the field work. The construction engineers giving them the support that the regional office would, and that would be working with them on their number of

[10] Choke Canyon Dam is the principal feature of the Nueces River Project located on the coastal plain of south Texas midway between the cities of San Antonio and Corpus Christi. For more information see, Jedediah S. Rogers, "Nueces River Project," (Denver: Bureau of Reclamation History Program, 2009), https://www.usbr.gov/history/ProjectHistories/Nueces%20River%20Project%20D2.pdf.

[11] McGee Creek Dam is the main facility of the McGee Creek Project near Atoka, Oklahoma to provide the area and Oklahoma City with municipal and industrial water. The project also provides fish and wildlife and recreation benefits. For more information see, Jedediah S. Rogers, "McGee Creek Project," (Denver: Bureau of Reclamation History Program, 2008), https://www.usbr.gov/history/ProjectHistories/McGee%20Creek%20D2.pdf.

employees. The Department [of the Interior] would give the Bureau so many employees, and then the Bureau would give each Region so many employees, and then you had to distribute those; working with them on their budgets, what the requests [were] for the fiscal years; and regional support for them in all types of functions.

Storey: So, for instance at that time the construction budget would have come to the region and then gone out to the projects?

Towles: Right. Well also, the budget that you would forward to Washington would come in from the Regional Office to the Washington Office, and that budget was made up by people in the field, in conjunction with the Regional Office to come up with a regional budget, and then that would go into our Washington Office, and they in turn would go to Congress, get the money, and then it'd come back down through the same . . .

Storey: And then be redistributed?

Towles: Uh-huh, and the Region was the one that did that.

Storey: Do you think that there was a change, say back when you were at Friant and Trinity? Had the money for construction come through the Chief of Engineer's Office then?

Towles: No, I think . . . It may have, and I wasn't high enough in the organization to know how they even got money when I was at Friant in the early days. But I'm assuming that when the regional offices became established, that that was some of the functions. I know it was that way at San Luis, and I'm sure it was that way at Trinity. So, I'm assuming when the regions got into the picture, they sort of handled all of the budgets and all of those kind of things.

Storey: Up to this point, when you went to Amarillo about '81, I have the sense that you were working *for* two people, or for people who worked for two people: one person in the region and one person in the Denver Office.

Divisions of Responsibilities

Towles: Uh-huh, one was technical and . . .

Storey: Did that cause problems?

Towles: I didn't for me. I can recall a lot of people saying it caused them problems, but I

had no problem at all with it.

Storey: Why do you suppose other people felt that there was a problem, and you didn't see a problem?

Towles: Oh, I always felt that . . . And it usually came around . . . people. It came around the number of people they'd give you to do a construction project. You may think you need fifty, and they may say, "Ah, you need forty." You know, things like that. Usually, budgets wasn't [*sic*] that big of a problem. Usually you jointly worked-up the budget, and if you got the money out of Washington, you got the money back from the region. It would also, maybe it would be an issue of support in a property area – you need some more "this" or "that": vehicles or more of "this" or "that," warehousing type deals. I just didn't have any problem with them. The region had its limitations, and once they told me what they were and they could or couldn't help me, I could usually figure out a way of getting by one way or another. So it wasn't that . . . I just didn't have that kind of problems.

Storey: Did you see the division of responsibility between the two offices as . . . I don't know whether "logical" is the right phrase, but as "manageable"? I don't know whether I'm making myself clear here.

Towles: Try it one more time.

Storey: If Denver was technical supervision, and the region was administrative, was that logical from your perspective so that it allowed you to do your job? and there wasn't a lot of overlap where you had gray areas where they *both* claimed responsibility and that sort of thing?

Towles: Well, I think I can remember comments we were making about that time, "Well, if we're responsible for construction, then we ought to be able to get the people we need to be sure we get the job done right." And then I think we would work with Denver, and we'd work with the region, and we would finally agree on a number. It's just now looking back at it, it worked probably about as well as you could expect. You certainly can't give everybody all the people they want, because there's just (chuckles) not that many people around, or you don't have all the resources to pay them. So, I think it was always handled in a fairly professional manner. I'd say, "Hey, you know, we've got a problem with people. Can't you kind of look at another way of doing it?" and usually you could come up with another way of doing it. Yes, I'd say you would liked to have had all your resources right there at the project, and "let me build the dam and leave me alone" type deal. "Give me all the money I need and all the people I need, and I'll give you a first-class product." Well, that was rather naive to think you could do that.

And so, the real world was, “Let’s see if we can’t work it out and still get a good product,” and we did.

Storey: And a lot of people have trouble adjusting to that kind of thinking.

Towles: Some people can’t. And I had no problem adjusting to it.

Storey: Well, I would like to continue, however our two hours are up.

Towles: Good, I need to go through the mail before . . .

Storey: I appreciate your agreeing to the interview, and I’d like to ask you whether or not you're willing for the material on these cassettes and the resulting transcripts to be used by . . .

Towles: Anybody.

Storey: Okay.

Towles: No problem. I haven’t said anything here that I couldn’t live with in any form.

Storey: Good, thank you.

END SIDE B, TAPE 2. MARCH 31, 1994.
BEGIN SIDE A, TAPE 1. APRIL 1, 1994.

Storey: This is Brit Allan Storey, Senior Historian of the Bureau of Reclamation, interviewing Robert J. Towles, Regional Director of the Lower Colorado Region of the Bureau of Reclamation, in the Lower Colorado Regional Offices in Boulder City, Nevada, on April 1, 1994, at about 9:30 in the morning. This is tape one.

I believe in '72 you went to Amarillo as the assistant regional director?

Towles: Right, uh-huh.

Storey: Were you the only assistant regional director then?

Towles: Ah, yes. Yes, I was. They made some changes just before I got there, and they didn’t replace the administrative assistant regional director, and so they just had the one, and that was myself.

Storey: Well, you had just come up from Palmetto Bend.

Towles: Right.

Storey: You know, we had discussed the fact that it was a fairly controversial project for some folks.

Towles: Uh-huh.

Storey: You mentioned that Three Rivers and McGee Creek were being constructed while you were there, and they were *also* controversial projects, as I recall.

Controversies on the Nueces River and McGee Creek Projects

Towles: Oh yeah, about any time we were building any type of facilities during that period of time, that was – you know, the Carter administration was in, and the environmentalists were very active, and you had the hit list[12] and things like that. So just about anything of that was even being thought of during that period of time was controversial. The Carter administration definitely wanted to stop all that type of development. And finally, there was enough political pressure from others that swung the pendulum back a little bit. But yeah, that was kind of trying times.

Storey: Were you involved in any of those?

Towles: No, no I wasn't.

Storey: That would have been the project managers who would have been out there doing that?

Towles: As far as what?

Storey: McGee Creek and Three Rivers.

Towles: The other construction engineers – there were construction engineers that had those projects, and I . . . The only role I played with respect to those projects was the fact I was in the Regional Office, and I was associated with their budgeting for the work and the personnel requirements that they needed and that type of stuff – support that

[12] Jimmy Carter served as President of the United States from 1977 until 1981 after his election in 1976. Within a few weeks of the beginning of the Administration, an internal discussion document accidently fell into the hands of a reporter. The document proposed cancellation of a number of water projects considered environmentally or economically unsound. This proposal came to be known as Jimmy Carter's "hit list." This happened while Commissioner Daniel P. Beard worked in the Carter Administration, and he discussed his perspective on the issue in his Reclamation oral history interviews and in "The Passage of the Central Valley Project Improvement Act, 1991-1992: The Role of George Miller," an Oral History interview by Malca Chall, 1996 for the Regional Oral History Office, Bancroft Library, University of California.

we would do out of a regional office for a project office.

Storey: Who were your regional directors while you were down there?

Towles: [James A.] Bradley was there just before I went into the Regional Office, and Bob Weimer was the Regional Director that I served under in the Regional Office.

Storey: Only under one then?

Towles: Yeah, right.

Assistant Regional Director Duties

Storey: How did he chose to have you work? Did he give you areas of responsibility and tell you, "Go take care of these,"? or did he . . .

Towles: Yeah. It was kind of . . . He handled . . . He came up from the operations side of the organization. He came up through what we call "Code 400." That would be the resource side, the operations. I came up through construction, so that was sort of a natural split. He just gave me the project engineers to watch over. And I worked quite a bit with respect to the budgets and those kind of activities. Although I believe the budget people, the planning people, personnel people, reported to the regional director direct – the others reported to me. But it was a mishmash. It was whoever was available when a question came up and things like that. It wasn't a real strict formal line, it was rather loose, but yet my primary activity would have been toward the field work.

Storey: And you would have been doing budgeting and the administrative sorts of things?

Towles: Yeah, the things it would take to keep a project going.

Storey: Was the region doing more technical oversight by that time?

Towles: Ah, no, not really, no. It was mostly the things that would have to go on to Washington, and things like that. It'd come through the Regional Office. And region played a more major role in those type of activities. So, they could combine all of the region's desires and put them in a package to go to Washington. So, it was those kind of things.

Storey: Well, I've sort of been "poking at," I guess, the fact that there are about four different (chuckles) entities in Reclamation. There's the Washington Office, the Denver Office, the Regional Offices . . .

Towles: And the project offices.

Storey: And the project – or now we're going to call them area offices, I guess.

Towles: Right.

Storey: When you were in the Regional Office, how did you know what was going to go to Denver, and what was going to go to Washington, for instance?

Towles: Well, that's pretty well formalized. All the budget work, your requests for funds and for congressional approvals, things like that, go to Washington. And your personnel, ceilings, come out of the department to the bureau to the regions to the projects. That goes back up through, if you need to request more or whatever. That all goes back to Washington. Policy comes out from Washington down to the regions out to the projects. So, I think it's a clean line. I don't think there's that much confusion to it. Now, I think there has been confusion later on as we've got more and more out of construction and into the resource area. Now you're getting Denver playing a much larger role in policies and this and that. It's changed over the years, but when you had a heavy construction program, the lines were clearer. Denver was the Bureau's technical experts. They had their oversight of the projects. The regions had program responsibility to keep it on schedule, to get the money in a timely fashion, personnel. And Washington was more or less the overall policy direction. So, to me, I had no problem.

Storey: When do you think the lines between the Denver and the Washington Office started to get fuzzy?

1988 Reorganization

Towles: Oh, I think that was as we started to wind-down construction; and more activity started in the resource area. And I'd guess that'd be in the 80s – somewhere in through there maybe – maybe mid-80s you're starting to see more activity in the environmental movement. And that's when you started to – All of a sudden, the Bureau of Reclamation was not totally a construction organization, building big features and things like that. We were finishing those, we were really losing a lot of our support from our political support, because there was no – we weren't building something for someone. And we were starting to have more pressures on the environmental side. All the damage that people felt we had done over the past. That's starting to get more movement towards . . . So, I think about that time the lines became much more diffused.

Storey: And then in '88 we had the reorganization. Did that help matters, or what?

Towles: You know, I really wasn't involved that much in the reorganization in '88. It didn't affect me that much. I was tied-in to, heavily involved in, in construction with the C-A-P [Central Arizona Project][13] and all those activities. And what was going on in reorganization I wasn't really hardly involved in. I'd hear about it, but from my viewpoint at that particular time, it was sort of "leave me alone, let me do the job I'm here for." And I know they were having all kinds of problems with the ACRM [Assistant Commissioner-Resource Planning] organization, that side. I'm trying to think when Billy Martin[14] came into ACRM – I don't recall when that was.

Storey: It would have been late '88 or very early '89.

Towles: You remember Terry Lynott[15] was . . . And I remember he was selected to do some things, I mean to reorganize or do something. And then that didn't fly. I think I've got this correct in my mind – then maybe I think Billy Martin came in and he tried something and then . . . I think they were groping at what roles they were going to do, because they were transitioning from a construction group to more of a resource management type area. And no one really knew how to handle it. So everybody had their own sort of ideas, and whoever was in power at that time had theirs, and theirs are probably the ones that prevailed. But the people that were still on construction like myself; we didn't pay any attention to all that, because we weren't fooling with it. We had *our* job we knew, and we were still working the same way we did years before. So, you had that going on at the same time the others were playing around with reorganizing and projections and things like that. So that's why I'm not that familiar with it.

Storey: As assistant regional director in Amarillo, did you get involved with any congressional liaison or anything like that?

Towles: We worked a lot *with* the congressionals [sic] on various activities in the regions. You know, the typical thing: someone complains about something, or landowner

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[13] The Central Arizona Project is a multipurpose water resource development and management project that delivers Colorado River water, either directly or by exchange, into central and southern Arizona. The project was designed to provide water to nearly one million acres of Indian and non-Indian irrigated agricultural land areas in Maricopa, Pinal, and Pima Counties, as well as municipal water for several Arizona communities, including the metropolitan areas of Phoenix and Tucson. For more information see, Jennifer E. Zuniga, "The Central Arizona Project," (Denver: Bureau of Reclamation History Program, 2000), https://www.usbr.gov/projects/pdf.php?id=94.

[14] Billy E. Martin participated in Reclamation's oral history project. See, Billy E. Martin, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, from1994 to 1996, in Sacramento, California, edited by Brit Allan Storey, 2010, https://www.usbr.gov/history/oralhist.html.

[15] Terry P. Lynott participated in Reclamation's oral history project. See, Terry P. Lynott, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation oral history interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in Lakewood, Colorado, edited by Brit Allan Storey, 2012, https://www.usbr.gov/history/oralhist.html.

issues. It just the whole system. We didn't . . . It wasn't anything different to me than it had been in the past, or different than it is today.

Storey: Did I ask you yesterday about executive training? I think I did, didn't I?

Towles: You asked me if I had been on any type of a training or . . .

Storey: Managerial program or anything like that.

Towles: And I said when I came out of college, no, I went right on into the construction area.

Storey: Okay. You were in Amarillo '81 to '83?

Towles: Yeah, about that.

Storey: Why did you chose to leave?

Deputy Assistant Commissioner

Towles: Well, they changed regional directors – I forgot, that's right – Darrell Webber came in – in fact, he's a good one that you may want to talk to, Darrell Webber.[16] Do you remember Darrell?

Storey: I've already interviewed him twice.

Towles: Okay, good enough. They moved him into Amarillo. So, he and I got to know each other quite well. Then he wasn't there very long. I don't even recall how long, but it couldn't have been over a year. He then went and got promoted to Assistant Commissioner for Engineering and Research in Denver. And Darrell's background was in automatic data processing. And a brilliant person. So, he needed assistance in the engineering side. And so, he asked me if I would come to Denver as his deputy. And I . . . You know, I *was* going to retire, then I said, "Okay, I'll come!" So, then I transferred to the Engineering and Research Center as Deputy Assistant Commissioner for Engineering and Research.

Storey: How long were you there?

[16] Darrell Webber participated in Reclamation's oral history project. See, Darrell Webber, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, Denver, Colorado in 1993, edited and desk-top published by Andrew H. Gahan, historian, Bureau of Reclamation, 2012, https://www.usbr.gov/history/oralhist.html.

Towles: Do you have that sheet? I didn't bring my sheet of paper with me. I forgot the dates. I'd guess somewhere from about (aside about knocking) '80 . . . Well, let's see, I was about . . .

Storey: Would you like to go get the paper?

Towles: Yeah, I'm probably going to have to. Let me get it. (tape turned off and on)

Storey: Deputy ACER in Denver.

Towles: From '82 to '86. Yeah.

Storey: So, what were you doing as deputy assistant commissioner?

Towles: Well, I was working with all of the various division chiefs in the Denver Office with respect to engineering and research. I handled . . . I just kind of handled running that office under Darrell Webber. Darrell did a lot of traveling. He was very active in outside activities associated with the Bureau and so forth, so I was sort of the operations person that helped keep things going. The division chiefs handled their areas quite well. It was when you had to mesh the various divisions with respect to program or administrative, that type, activities with engineers and things like that.

Storey: Were there any particular projects that you became involved in?

Towles: Oh, quite a few projects. I mean, just from the discussion viewpoint, not down into a lot of detail. But when issues would come up on just about any project the Bureau was working on, I would be in on the meeting, and we'd discuss it and then we'd decide how to go from there. It was a lot of times priority of design work: one's falling behind schedule, do we have to put more resources? Regional directors are complaining that the designs are too costly or we're too slow; or there's changes – things like that. Having to make model studies of a particular structure, rather than where we thought we could just do it without going to another model. We have to go to a model now because the designers are picking up something. And just every-day type activities. It was an interesting job.

Storey: Was it eye-opening in the sense of giving you a different understanding of what Denver did in the organization?

Towles: I think the eye-opening was how protective all the various divisions were of their areas of expertise. It was tough to try to cut across lines with cost-cutting issues and getting consensus, working through it. It was a very delicate type of process you had to go through, due to turf, due to egos, due to all kinds of issues. The

Denver Office, in the design business, has been there for years. And there's a rigid structure of how you do things. There're manuals, there's procedures, and they're very good at it. And so, when you start to cut into that for "we've got to hurry up and get something out," or "we have to do this or do that," that's out of the ordinary, that's a pretty tough issue for some of those folks, because they are professional specialists and you're always trying to work a deal to get something going. So yeah, it was (chuckles) a very trying job, but it was a very interesting job.

Storey: An engineer recently pointed out to me that *he* had identified two types of engineering personalities. One is the technically oriented person who wants to be designing and doing things that are of immediate use. And then there's the engineering personality that's interested in long-term planning. Did you see those types in Denver?

Towles: Oh yes, we had what we called the "Code 700" group. That was the planners. And then we had the "200" type people. They were the designers on the engineering side. Oh yeah, I can recall many times to where you had technical people that didn't want to do anything but just technical work. I mean, they weren't happy anywhere else. And the problem with the system where we work under is the fact, if you're going to promote somebody, over the years they have to take on supervisory responsibilities. And these people (brief interruption, tape turned off and on). The technical person didn't want to *have* that responsibility of worrying about somebody's particular welfare or whatever the management on the administrative side. But we'd go ahead and promote them and put people under them just so they can get a grade raise or to *keep* them! So now you've taken a good designer, a good person that *doesn't* want to fool with this other stuff, *forced* him to do it, he *does* a lousy job, and so it's just a real problem. And *in* government we've always – at least within the Bureau – we've always talked about dual ladders, where a person with a lot of technical experience doesn't have to be associated with all this other stuff, and still can come up in grade-wise. It never did get off the ground very far. Once in a while there'd be an exception that you can point to, but generally, if you're going to come up in the career ladder, you're going to have to have administrative functions under you. I don't want to give you the idea it was the big, big problem, but it was a knowing problem – and especially in the Denver Office. And it's true everywhere to some extent, but especially in the Denver Office, to where those people are so highly skilled.

Storey: And not interested in anything else?

Towles: In some respect, not totally. I mean, I can think of cases where that isn't true at all, but I can think of a tremendous number of cases where that is true. So, personnel

people had a lot of trouble with that, you know. And especially as it got later on in the years, to where now we've got much more encouragement for people to, "If you're not satisfied, tell us about it. Let us know." And now all of a sudden (chuckles) this technical person that's supposed to be a supervisor of this large number of people, now the people are starting to say, "Well, he's a lousy supervisor!" Now all of a sudden, personnel is going to straighten *him* out, and so here we go. But that's life. I don't think it's anything really major, but it's just sort of one of the issues I had to play with.

Storey: In Reclamation, would you identify any other major personality types for engineers?

Personality Types

Towles: I think looking back – and I don't want to say it's just Reclamation – but I think I could say the same thing for the Corps [of Engineers], T-V-A [Tennessee Valley Authority], some of those large organizations – probably the country had some of the *best* engineers at that time, that you could have. We were developing a lot of the country at that time, we had real experts, people that had come up through the ranks. You know, there wasn't any, "We'll send you to six months of administrative training, now you're going to come in as a head of a design group." I mean, you worked your way up from a [grass?], right out of school, right on up the line to maybe a section chief, and then a branch chief, and then a division chief, and then maybe a head of something else. So, you really worked your way up. And you had top-notch people, because there was a lot of work to *keep* them top notch. But as construction works dropped off and things like that, there wasn't that much work coming in. And so those kind of people either were just sort of hanging on and doing whatever happened to come in the door, or they left. And so, we lost a lot, the country lost a lot of top-notch design people at that time.

Storey: Because they went to private enterprise?

Towles: Well, they went wherever there was an opportunity.

Storey: Or they lost their skills?

Towles: Well, you know, to design you've got to . . . I mean, to keep your skills up you've got to design. You can't sit and look at somebody else's work. And so, as we started to do a lot less work, they started to drift off to other areas. But we still had some design going, but it just wasn't the magnitude that we had previously.

Storey: Did you have anything to do with the labs?

Working with the Laboratories

Towles: Yeah, under Mr. Webber we had research in the labs over there. So that fell into my area also.

Storey: Uh-huh. Were there any particular issues?

Towles: No, I thought again, very professional people – *very* professional, outstanding. And I think our lab work at that time in hydraulics and paints and in all types of materials was probably leading the country. You look around, you see all of those folks were on various kinds of committees for world-wide activities.

Storey: Were there any particular things that Reclamation developed at that time that were innovative that you happen to remember?

Towles: I think the greatest thing that they did was with respect to . . . We had flooding on the Colorado River at that time, and we just about . . . We had a lot of cavitation and so forth in the tunnels and so forth at Glen Canyon. We developed air slots to break up this vacuum that causes when the water comes down the slopes of those tunnels at such high velocities it creates a vacuum, and then it pulls the concrete right out and starts to cavitate big deep holes into portions of the tunnel lining. Our lab people came up with model studies and so forth and came up with ways to correct that with developing air slots that induce air in to break up the vacuum. That was probably the greatest thing that *I've* been associated with. I think it was just outstanding.

Storey: At that particular time. That was while you were deputy assistant commissioner?

Towles: Yeah, that was about in '83.

Storey: One of the things that I noticed in talking to you yesterday was that you like new challenges all the time, but you also wanted a promotion all the time. Had you set your sites on something? Had you set a career goal or anything like that?

Career Goals

Towles: Not a bit. It kind of surprises me that you picked that up in our interview. I remember when I first started out, I wanted to be a chief of a survey party, because I'd always been a chainman or rodman or whatever – instrument man. And I thought, "If I could ever get to become a G-S . . ." I guess it was G-S-7 at that time, "Head of a survey crew, that's as high as I wanted to get." And with my wife working, we could retire on that and that would be great. Well then opportunities

opened up. Of course. I'm just like anybody else, I'm interested in a promotion, but just to get up the ladder – but really more interested in a new challenge, a new job. New jobs are just great. It seemed like after about three or four years, you're ready to go to another job. It just seemed like that's where it is. Fortunately, my family had always been willing to pick up and go. Looking back on it, that was excitement. I think it was the excitement. And of course, the promotion was in there too. But a lot of times I went with the idea that there wasn't even going to be a promotion; or "We'll just have to wait and see what develops." I can remember when I got out of school, hit the same grade I think (chuckles) as when I was working for the Bureau the summer before. Then when I went to Trinity it was with no promotion, but "Well, if you prove yourself, and as the job expands . . ." That's where the promotions come, is when all of a sudden, we need more people, and if you're doing a good job at that time, you usually got a promotion. And that's kind of the way it worked.

Storey: One of the things you mentioned, just in the last few minutes, was the problem *some* technical people have in accepting supervisory responsibilities, developing the skills that are needed, and so on. How did you respond to those changes? Obviously, you were evolving away from being a chainman to an engineer and then an assistant field engineer, and so on up. And by the time you got to be an assistant field engineer, you had two hundred people working for you.

Storey: I didn't have any trouble with it. I think the reason is, I'm not a perfectionist. I don't like to fool around with details – I think I'm more driven with the idea "Let's get it behind us, let's figure out what we're going to do and go on." I don't like to dwell on what our past mistake were. We make them, what we need to do is just find out *why* we make them, so we don't make them *again*. But let's move out. Some people need to dwell on it, and dwell and dwell. A lot of people are very protective of their turf, and I'm not. It doesn't bother me if somebody else is involved, as long as I'm kept informed. I don't want to just sit back and let somebody else take it over.

Storey: Or run away with it.

Towles: But I'm not a perfectionist. And I think that probably this is what has made me able to come up through the organization, is the fact that I'm willing to give and take and work with people and understand their views, accept them. They may not be exactly the same as mine, but if we get to the same goal, what difference does it make how we get there? That's kind of my approach, and I think it's probably paid off.

Storey: Did you enjoy becoming a supervisor?

Towles: Oh yeah, I think so. I think I'm a people person. I think I like to be able to try and take care of people. When I came up, I always felt there was somebody kind of taking care of me in the organization. I gave them the best I could, and I felt that all you had to do is do that, and you'll be taken care of. And I think, looking back on my career, I think that was true. But we need to keep it in perspective. The reason I was taken care of, they were *able* to take care of me. There were projects out there to be built. The same type of work that I was on, there was another one out there to do. So, they could take care of you. The problem is, nowadays, we still want to take care of our people, but we have no projects to *take* care of. The *desire* to take care of is still there that hasn't changed a bit. I think as you move through – especially on construction – when people move with you to go and build another job clear across the country, you have kind of an allegiance or a bond with those folks, so you take care of them. And you know they've got some shortcomings, and you know they've got some strong points. But evidently since you like them, they must be doing you a pretty good job – at least to your standards. But the difficulty you have now is the fact that you just don't have those positions out there any more to move them to. And that's pretty tough to take.

Storey: So that's a problem for you, personally?

Towles: Very much so, very much so. If I've got a problem, it's that. (chuckles)

Storey: Yeah. Well, it's an *emotional* problem, I would think.

Towles: It is. It's a tough problem when you go and . . . Like I'm retire . . .

END SIDE A, TAPE 1. APRIL 1, 1994.
BEGIN SIDE B, TAPE 1. APRIL 1, 1994.

Towles: . . . I'm talking to these construction groups that are doing work for us now, such as up at Roosevelt Dam[17] or Coolidge Dam, the Arizona Project Office in Phoenix, Yuma, Hoover Dam folks up here. And you know everybody can see down the

[17] Theodore Roosevelt Dam, the first major structure constructed by the Bureau of Reclamation on the Salt River Project, is located about 76 miles northeast of Phoenix and 30 miles northwest of Globe, Arizona. The dam, completed in 1911, was subsequently modified between 1989 and 1996. The original dam was a cyclopean, rubble-masonry, thick-arch structure that spanned the Salt River to form a reservoir of 1,381,580 acre feet. It was 280 feet high, 723 feet long at the crest, and contained 355,800 cubic yards of masonry.

From 1989 to 1996, the dam was modified by the Bureau of Reclamation. The modification raised the dam 77 feet in elevation and made the dam a concrete-gravity arch dam, increasing its water conservation storage capacity by 20 percent, adding flood control space to the reservoir, and addressing concerns about its safety as well as the safety downstream dams. In addition to raising the dam's height, the modification included construction of two new spillways, installation of new outlet works, and powerplant modifications. Also, existing recreation facilities at Roosevelt Lake were improved, and new recreational facilities were constructed.

road we don't have any more need for construction-type folks, and we've got tremendous numbers of them here. And everybody knows that this is their last job, as far as construction is concerned. And the things that they've been trained with, like I have, over all these years, is no longer out there and it's no longer needed by the Bureau. And that's tough to sit and talk to those people. The same ones, that if there was another job, you'd take them with you and go to it. But there's no other jobs. So that's a tough particular area.

Storey: You became assistant field engineer and the field engineer and acting construction engineer on the San Luis Project, then you went to Palmetto Bend?

Construction Community

Towles: As construction engineer.

Storey: Did anybody move from the San Luis Project to Palmetto Bend with you?

Towles: Ahh, not right away, but as vacancies were needed to be filled, we would advertise for the job. It's a very. . . You know, you can't . . . It used to be the days you could take people right with you, and we'll make a job for you, because you needed those skills. But you know, within that period of time, and even before then, you advertised for jobs. They go out to all employees and then you select the one that you feel is best qualified for it. So, you can insert your thinking into that. And I did select some people – not a lot of them. A lot of people for that job came out of the Planning Office in Austin that was already established, which they were reducing down in size – came from all over. But I had some from the San Luis Project. I'd guess just a handful, maybe five or ten.

Storey: Was the construction community in Reclamation a small community, a closely-knit community with a lot of communication back and forth?

Towles: Yes.

Storey: From project to project?

Towles: Yes. I would call it small – I don't know what kind of numbers we had in those days, but it was a close-knit group. As an example, to show you how it is, I was acting construction engineer at San Luis and I got a call one day from Barney Bellport[18] who was the chief engineer in Denver, and said, "Do you want to go to Texas?" and I said, "Sure." He said, "Okay, we'll send you an announcement." Well, the announcement came out and I applied, and they selected me, and I was

[18] Bernard P. Bellport served as Chief Engineer in the Denver Office from 1963 to 1972.

going to Texas, and that's how it was. You do them a good job, and they took care of you. It was a close-knit organization, but if you do something wrong and they get down on you, it worked just the opposite, and it hurt you. Some of those folks were very opinionated. And so yes, it was a close-knit organization.

Storey: Did you know all the other construction engineers?

Towles: Yes. We had a yearly construction meeting, they'd call us all in, and we'd go over various issues, things that were going right, things that were going wrong, and try to get some uniformity, try to keep things from happening again. A lot of the discussions would be on contractors' claims. You know, "We got to improve our specifications, we can't have this happening," those kind of things. It was, I thought, very professional.

Storey: Was there a similar type of a meeting, like for field engineers and assistant field engineers and so on?

Towles: No, not really, you'd have those at your own location, but not . . . A cross-section of all of the field engineers wouldn't meet or all the whatever would meet, no. It was mostly the construction engineers, and they'd come back, and then they would tell their organization what they did, what they're finding out, what's going on, and how to operate.

Storey: Did they, for instance, send you off to training?

Towles: Ah, there was always training available. They had like an earth and a concrete school in Denver that just about everybody in the field would go to, various times during their career, you know. I think I went to it once or twice – at least once, no maybe twice. And then a lot of times maybe they would have technical seminars in Denver, such as on grouting or some specialized activity. You'd send the people that you're going to have do that there. Instrumentation of structures, dams, and so forth, where you'd put in various instruments to check on movement, on seepage, and on this and that. That was a specialty, and you sent people to Denver on that. Denver handled the technical activities. They kept all the field up to speed in those areas.

Storey: What I guess I'm sort of trying to get at is, you have these various construction projects scattered around the country: How did the personnel from one project interact with personnel from other projects?

Towles: Usually . . . Well, ah . . . They all had friends and buddies on other projects, and they'd talk back and forth. Field engineers would be well acquainted with other

field engineers. Or construction engineers, they would always talk. Especially when you had to ship people around, you were short of this, the contractor was going to go to a three-shift operation, you needed people in a hurry. So, you'd start calling your friends around and say, "Hey, got anybody you can let us use for six months or a year?" Or during the winter, in the cold country, you try to place your people in the deserts, like out here on these jobs. There was a lot of communication. It was formal communication up on top, with Denver kind of controlling it, but underneath that it was all back and forth.

Storey: And sort of informal?

Towles: Very much informal.

Storey: A lot of movement of construction personnel, was there?

Towles: Yeah.

Storey: So, you might meet Joe on Friant . . .

Towles: Oh yeah.

Storey: . . . and then maybe he would go up to North Dakota for a while . . .

Towles: Oh, very much so.

Storey: . . . and so you'd get the network built up that way also.

Towles: Oh yeah, very much.

Storey: How long were you in Denver as deputy assistant commissioner?

Towles: Well, I went down to project manager on the Central Arizona Project in '86, so I went from '82 to '86.

Storey: Once again, why did you chose to move?

Coming to the Central Arizona Project

Towles: I got a call from the regional director, Ed Hallenback – in fact, he'd be a good one to talk to. He's working for the water district in Southern California, but he's an old-time Bureau person. Ed Hallenback. He gave me a call and said that he would be becoming regional director, that he was project manager at the Central

Arizona Project, and since that project was construction, and it was the biggest thing the Bureau had, he wanted to know if I'd want to come down. And I said, "Well, I don't want to lose my grade, but I'll come straight across if you'd like to have me." And so, they looked at it and they made it an S-E-S [Senior Executive Service] position there. I think it was a G-S-15 at the time. Ed got a promotion to come to the region as an S-E-S position. I told them I'd go down to Arizona, but I didn't want to lose my S-E-S position that I had as deputy assistant commissioner. So, they made it an S-E-S and they said, "Okay, will you go now?" and I said, "Okay," and so I went on down. And it was really to get back on construction again and get away from (chuckles) trying to balance all these damned egos and turfs and everything in the Denver Office!

Storey: What were the major issues that you felt there were for the Central Arizona Project?

Towles: It developed over time. When I first got there, it was "Get the aqueduct to the end," which was around the Tucson area. It's three hundred thirty miles long. It was getting fairly well completed, the canal itself, headed towards the Tucson area, so we had all that to do. Then we had all the work on the dams to do. That's such an enormous job. We had dams to build on the – the New Waddell Dam[19] to build, and then we had safety of dam projects on the Salt and the Verde rivers to do. And then we had a lot of Indian work, a lot of distribution work – we had all kinds of work. It was an engineer's paradise. I mean, you had everything going. And I think that was why I wanted to get down there and get maybe back to some of the basics that I had in my earlier years.

Storey: What about dealing with political groups, water districts . . .

Towles: I started to do that much more. That's when I really started to deal much more in those arenas: the Arizona delegation and all the various water districts and repayment districts that had to repay the project and things like that. So, I started to get much, much more in that. So, it *wasn't* just go out there and do construction – in my position I was also responsible to keep all these other things going. But it was great. To me, it was one of my better jobs.

Storey: How did you do all of that? You had to manage construction on *several* major features, you had to deal with various political groups. I presume that in that

[19] 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). The dam's reservoir, Lake Pleasant, also stores water for MWD irrigation. The dam stands 300 feet high and has a crest length of 4,900 feet.

position there were a lot of calls for you to go out and meet public groups and give speeches and a lot of calls to travel and that sort of thing. Do you have somebody who's in charge of this feature, and somebody who's in charge of contracts and so on?

Towles: Exactly. I think that was one reason I was suited for that type of a job, is the fact that again, I point out that I'm not a specialist, and I don't really dig in real deep into any particular issue or phase. I hit it at more of a broad brush, higher level. So it wasn't very difficult for me to select people that had the answers, that could present themselves well, and turn them loose. And so, I more or less sat there and . . . I would always hit the hot issues, the ones that were really boiling – I'd be there and either catch hell (chuckles) or . . . Mostly catch hell, for either too slow, too expensive, too what. But then I had subject matter people that knew much more about it than I, and *they* would do the work. And so, I was able to cover it all, quite well.

Storey: Tell me some of the hot issues that you got involved in.

CAP Issues

Towles: Oh, just a whole array of them. We were doing the distribution systems to take the water out of the canal. The distribution systems had to put up, the distribution districts, agricultural districts, had to put up twenty percent of the money, and then they did the design of the facilities, and we did some of the oversight, and there was always a conflict of that, and things like that.

Then there were Indian issues we were trying to work out the water issues with respect to the tribes – they had so much guarantee of water – and trying to work with them to come up with what kind of a system do they want?

Had issues with respect to the various – like the Salt River Project[20] who operated the dams on the Salt and Verde rivers, and we were in there trying to make the dam safe. So, you had coordination issues with them. They had concerns that we weren't going to put them out of business. While we repaired a dam they needed to continue operating. They had commitments for water and power.

[20] Authorized for construction in March of 1903, the Salt River Project is one of Reclamation's oldest. The Salt River Project, located near Phoenix, Arizona, includes a service area of about 240,000 acres spanning portions of Maricopa, Gila and Pinal Counties in central Arizona. The land within the project is furnished a full irrigation water supply from the Salt and Verde Rivers and from 250 groundwater wells; about 26,500 acres are furnished supplemental irrigation water. For more information see, Robert Autobee, "Salt River Project," (Denver: Bureau of Reclamation History Program), https://www.usbr.gov/projects/pdf.php?id=183.

All those kind of issues. And then of course you had funding issues with respect to the Washington delegation. They would try to keep you funded, and you had to work with them closely. Just an array of issues.

Storey: I'm trained as a historian, and in truth, I do very little as a historian in my current job because I spend all my time putting together contract documents and trying to supervise summer hires and faculty fellows. And this is about the only history I get to do, is the Oral History Program, but I consider myself to be a historian. I say this as a preface, because I don't want you to misunderstand the next question. When did you quit being an engineer?

Towles: Probably when I left Palmetto Bend. Probably then.

Storey: Up to that point, you would say you were a practicing . . .

Towles: I was comfortable in engineering, yeah. Then when I got to the Regional Office, now I'm taking on more budgets, more personnel issues, more procurement issues, more of all kinds of issues.

Storey: E-E-O [Equal Employment Opportunity] and all kinds of things are coming up.

Towles: E-E-O. Then when I went to the Denver Office I was in charge, or I was the assistant to being in charge of all the design work, the lab work. Ninety percent of my time was getting to keeping it on schedule, not sitting down there doing *any* design – I'm not a designer – but I knew what they needed to have out in the field to keep the projects on schedule, so I fit pretty well into that arena. But yeah, it was about the time I left the responsibility at Palmetto Bend, building the structure that I was.

Storey: I know that you're an engineer, period, *but* . . . (laughs)

Towles: No, that's right.

Storey: The way you do your work is different.

Towles: And now that I'm a (chuckles) regional director, it's even further removed! When I was down at Arizona Project Office – we were just speaking about Central Arizona Project – I still was much closer to engineering then than I was in Denver, or than I was in Amarillo – but that's such an enormous project, that I had so many other activities going on, that I was still not as close to engineering as I was at the Palmetto Bend Project. And then as I moved up *here*, now I'm further away than ever, because now all I do is deal on just everything that goes on in a Regional

Office, which is a complete (chuckles) zoo.

Storey: Did you have trouble letting go of it? Or did it just come naturally to you?

Towles: Oh, it came naturally. As I say, I think the reason it came natural; that I wasn't that much of a person that couldn't let go – I *could* let go. And that's why I think they wanted me to kind of move around, I could let go.

Storey: Now when you were field engineer, if I recall, you had maybe a couple hundred Reclamation employees that were working for you.

Towles: Ah, yeah. Right.

Storey: What happened when you became the acting construction engineer, in terms of that number?

Towles: Well, that number was decreasing because the project was coming to completion, and so it was just going down through either attrition or we had a reduction in force, and things like that. So then when I went to Palmetto Bend, I had about sixty or eighty people maybe total.

Storey: That was from beginning to end?

Towles: Yeah, about that. So that was much smaller than the San Luis Project. San Luis we had six hundred at one time. And so, then when I went to the region, I forgot the size of the region, but I guess the region would be maybe a thousand or something like that. And then of course at Denver – that would be under Mr. Webber's and my control – would be maybe eight hundred fifty. Went to Arizona Project Office, it was around six hundred, six ten. So now here it's fifteen hundred. So that's . . .

Storey: Now, when you say fifteen hundred for the region, that's everybody within the Region, right? How about here in the Boulder City Office, the Regional Office?

Towles: Oh, we're around three hundred and twenty, three hundred and thirty.

Storey: And I think the term is "span of control"? How many people directly do you supervise now?

Towles: Well, I guess you would say I supervise the project offices heads, and there is Arizona, Yuma, the dams, Southern California – about four there. I supervise – I have two assistant regional directors, although one's vacant now. So (counting) four, two, six, and my secretary is seven. Oh, maybe not over a dozen.

Storey: Was it about the same in Phoenix?

Towles: Hm, about the same, maybe a little less, or maybe eight.

Storey: What happened? Why did you come? Why did you decide to come up here? How did you come up here? All of those things.

Lower Colorado Regional Director

Towles: Well, they said . . . They got a call one time, and Mr. Hallenbeck decided to retire and go to work for a water district, so I got a call from Denver, Mr. Hall, Joe Hall[21] – I don't know if you've interviewed Joe.

Storey: Yeah.

Towles: He said, "Hey, I talked to the commissioner. We'd sure like for you to go on up to Boulder City and be Regional Director." I said I didn't want to go, I didn't have any desire to become a regional director. "But" I said, "if you really need me, I'll go. But I'm not anxious to go, same grade, same area." And so, he said, "We need you, we kind of want you." And so, "Okay, I'll go." So, hell, I picked up (chuckles) and moved to here. I left probably the best job with the Bureau to come up here, but I enjoy this job quite a bit too.

Storey: What was when?

Towles: That would have been three years ago, so it would have been – I think the official was in '91, about May of '91, about three years ago.

Storey: And so, you were no longer directly over construction again.

Towles: And I got further away from it.

Storey: What were the new issues that you had to deal with?

Towles: Oh, I think the newest issue was the Law of the River, the issue with respect to water entitlements from the Colorado River, working with all the various states, the lower basin states primarily – Arizona, Nevada, California – on their apportionments. And by that time, Arizona had to start repaying the Central

[21] Joe Hall participated in Reclamation's oral history project. See, Joe Hall, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, in Denver, Colorado, edited by Brit Allan Storey, further edited and desktop published by Andrew H. Gahan, historian, Bureau of Reclamation, 2015, https://www.usbr.gov/history/oralhist.html.

Arizona Project, so we got involved in that. Nevada's short of water – we're involved with that. You know, away from engineering, but very interesting, very, *very* interesting issues and subjects, and they're still ongoing.

Storey: I'd like to pursue the C-A-P [Central Arizona Project] repayment issue. What kind of courses . . .

CAP Repayment Issues

Towles: Talk to Bob Johnson.[22] (laughs)

Storey: Bob said talk to you about it!

Towles: No, I can give you the broad prospect of it. Well, you know there's repayment dates in there, when things are completed by a certain time, you're supposed to start repayment. And there's various activities that you started on. One is the aqueduct system. And I think the next repayment is when you complete the safety of dams work and the Waddell Dam. I think those are the two major ones. And then there's another one, Tucson Terminal Storage Facility is another issue. But as you finish the structure and you can deliver water, you put the district into repayment. Well, when you do that . . . (tape turned off and on)

Did you get a copy of this?

Storey: Yes, I did, thank you. I think we were talking about the things that were going into repayment considerations on C-A-P.

Towles: Yeah. When you build a large project like that, and there are some things that are reimbursable, and some things aren't. And then the amount of those that contribute to the total cost of the project and things like that. So, we're working with the district that has to do the repayment and what should be included and what shouldn't. There's somewhat of a controversy. They say, "Well, no, not all of this," or "not all of that." So, we're working through that. And so, the time has come now that we spent all this money on that Central Arizona Project, for the state to stand up and be counted as far as the repayment is concerned. So, it's actually the folks that will do the repayment as an entity developed by the state to central Arizona water service districts. Those kind of things are going on. And then

[22] Robert Johnson served as Commissioner of the Bureau of Reclamation under the George W. Bush administration from 2006 to 2009. Mr. Johnson also participated in Reclamation's oral history project. See, Robert (Bob) W. Johnson, *Oral History Interviews*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, from1994 to 2008, in Boulder City, Nevada, and Washington, D.C., edited by Brit Allan Storey, 2012, https://www.usbr.gov/history/oralhist.html.

you've got the price of water, what it's going to cost, and how to handle that with respect to the farmers, can they afford it or can't they? The cost of the farm products had decreased considerably, and so the farmers are in a world of hurt right now as far as that's concerned. So, there's just a lot of problems. There's no one good answer to any of it. So those are the kinds of things we're dealing with right now.

Storey: You came into C-A-P sort of at the late end of construction, is that right?

Towles: Right. Came in there when they had the . . . We've got the maximum budget, but the project was well-planned by the time I got in there, to where it was a matter of continuing and following that plan. Things were all pretty well up to some stage of activity when I got there. There wasn't a lot that we hadn't got started, although there was a few things. But in general, we were up and running. The project was staffed, things were into more of a procedural mode at that time.

Storey: Of course, planning Reclamation projects takes a long time, comparatively.

Towles: Very long, uh-huh.

Storey: So, you start out with preauthorization studies, and then you get an authorization, then you do design work, and so on. If Reclamation was going to do it again now, would we be changing things?

Towles: Well, I'm not too . . . I don't believe you would ever build the projects now that we built in the past. The country just is not in the mood, the environmental movement is so strong, you just don't have the desire of the country to either fund or to do damage to the environment that a lot of people think that we've done. They just won't accept it. So, I just don't think you're going to see what we've done in the past repeated again – *until* the population has increased to such an extent that we're now running out of things. When the people can't receive the electricity or water and it gets to be such a hardship, then I think you *will* see some more development. Just look at the drought that occurred in California: You didn't see a real uproar that "we're going to all run out and build some more dams." It was more "water conservation, try to conserve, this thing will blow over." Now if it would have lasted longer, you may have started to see that. But it's not going to happen at first blush. So, would we do the same things we did in the past in the future? I don't think so.

Storey: Well, say we didn't have any constraints: What I'm trying to get at is, with hindsight, is the project, was the project designed to be too large?

Towles: The Central Arizona Project?

Storey: Yeah.

Towles: Oh, I don't know. It's all depends who you talk to. How far do you want to look in the future? Arizona *is* growing. A lot of it was with the idea that agriculture will take the water and they will use it until the Indians are ready for water, and that the cities, until *they* need the water. It was a long-range plan. The problem is, is that the agricultural economy dropped out – I mean, as far as being able to afford expensive water, to pay this. And so now the people that you thought were going to *use* the water are saying, "Hey, we can't *afford* the water." And then the cities aren't up and ready yet to take it all, and so you've got a period of time here. I think probably fifty years from now you'll look back and say, "God, sure lucky we got the Central Arizona Project, because we've got all these people that are coming in, Tucson's expanding, Phoenix, and all this and that." But right now, it's a tough transition, and the federal government is saying, "Hey, who's going to pay for this? We did our part, we put up the money. Stand up and be counted." And it's tough to pass increases in sales tax and this or that – especially in the Sun Belt area where there's so many retired people. They don't want any increases. You can't get. get school bonds passed, you can't do this, you can't do that. So, it's tough right now.

Storey: What are some of the other issues you've had to deal with as Regional Director?

Regional Challenges

Towles: I think we're trying to get water for Nevada. That's a big issue here. Southern Nevada is growing so fast, they got such a small entitlement to the Colorado River. And we've got Arizona that has surplus water right now, although they're going to protect it very closely. Then you've got California that could probably use all the water that anybody else (laughs) can't use. And so, it's that whole configuration. Then you've got the Indians that are out there wanting to develop their water resources, but that means settlement of a lot of the water disputes that the Indians have with *everyone*. Those are *so* hard to settle. I mean, those things go on for years and years and years. So, as they get these settled, they want to have *their* distribution systems built by the federal government so they can use the water and this and that. So, it's those kind of issues. And environmental issues, endangered species issues. You name it, we got them.

Storey: How about the desalting plant at Yuma?[23]

[23] The Yuma Desalting Plant was constructed under authority of the Colorado River Basin Salinity Control Act of 1974 to treat saline agricultural return flows from the Wellton-Mohawk Irrigation and Drainage District. The treated water is intended for inclusion in water deliveries to Mexico thereby preserving the like amount of water in

Towles: Yeah, that was built in the time that it was a political decision to satisfy Mexico . . .

END SIDE B, TAPE 1. APRIL 1, 1994.
END SIDE A, TAPE 2. APRIL 1, 1994.

Storey: This is Tape 2 of an interview by Brit Storey with Robert J. Towles on April 1, 1994.

Towles: The state said, "Well, that's a federal responsibility, that isn't ours. Don't you do something, you feds, that's going to affect our water." And so, the state said, "Well, go ahead and build your desalting plant if you wish, but don't meet your treaty with Mexico by taking water from us." And so, we built the desalting plant. And now we're faced with it's going to be expensive water. We knew that, and now we're faced with a situation that are we going to run it or not? We don't need it right now. There's enough fresh water that we can supply whatever it takes for Mexico. We have water credits that we lined the Coachella Canal, and that gave us some credits that we can leave the water in the river and satisfy our commitment. It's a tangled-up mess. The states look at it as a federal problem, and the feds look at it that, "Well, we're not going to do any harm to Mexico, so we are going to meet our commitments" and so that's where we are right now.

Storey: Talk to me a little bit more about this Coachella Canal thing. You know if I were a farmer on the other end of the canal, I would be saying, "I'm entitled to get X number of acre feet at the head of the canal (laughs). You line it so I can get more out the other end." But that doesn't sound to me like what you were talking about.

Towles: No, we line it, and we pay for it, and then we're going to get that water to help us meet our commitment, or save water, to meet the commitment to Mexico.

Storey: The water that would have . . .

Towles: That would have gone in the ground, and no one would have gotten anything. And so that is kind of the philosophy that was used.

Storey: But Reclamation . . . So that's not a cost reimbursable item, then?

Towles: That's right.

Storey: Oh, okay. But if it *had* been cost reimbursable . . .

Lake Mead. Construction of the plant was completed in 1992 and it has operated on two occasions since then. The plant has been maintained, but largely not operated due to surplus and then normal water supply conditions on the Colorado River.

Towles: If it had been, you're right, a hundred percent right.

Storey: Oh, okay.

Towles: So, we have those credits. And I think the big thing that kind of everybody says, "Well, you ought to, if you've bought out . . ." Wellton-Mohawk Irrigation District, that is, all their drain water coming out, they have to pump out of the ground to keep the salts down at a certain elevation. "That's all causing the pollution. You ought to buy them out. Should never have built the plant to start with. Buy out the district, and that would have taken care of your problem." The thing is that the district isn't a willing seller. They say, "No, we don't want to sell. We're raising some very fine crops down here, and if you've got trouble with Mexico, you've got trouble with Mexico. We don't want to sell." And no one at the time, when the decisions were made, felt that they were going to force the Wellton-Mohawk District to sell, and so . . . And I think it's correct. I'm not too sure the government should play that strong of a hand to force some people out of a livelihood, although it may make economical sense. And so, they didn't, and they wouldn't today. And so there we have it. So, when the river gets in such a situation to where we have to run the desalting plant, I think we'll run the desalting plant. Now somebody at that time may say, "Hey, it's cheaper to do this or that." And we *may* do this or that, but the plant is there, and we've told Mexico that we will honor our commitment to you.

Storey: In terms of the water quality?

Towles: Uh-huh. And they're guaranteed so much water to be delivered out of the Colorado River.

Storey: I thought that I read something that said that we were at a point where we had to make a decision either to sort of maintain the plant and keep it operational, or we were going to close it completely.

Towles: We're in what you call now "ready reserve." What that means is that we are exercising the pumps and keeping the electrical up, keeping all this up, so we could go back into water production within, say, a year. What we're trying to do is sit down with the states and agree when situations are such on the river that we need to start that plant up, we will have X years of notice. It really depends on the situation of the surpluses on the whole river system. If there is plenty of water, we won't run the plant. But if the drought starts, and it continues for years and years and years, and there's no indication that we're going to have a switch either in the drought, or any particular state is going to change their mode of operation, we'll say, "In two more years, at this rate, we're going to have to run that desalting plant to meet our treaty." The federal government is, *I* believe, prepared to bite the

bullet at that time and say, "We're going to gear-up to run the plant." Now, if you decide to get it out of ready reserve, not to exercise it, and put it in mothballs, and say, "We're going to mothball the plant," then you're going to need *more* warning. So, it's a question now of how much advance warning do you need?

We're also working with the Lower Basin states in what we call our "Regulations for the River." Now they're going to allow more flexibility in how we look at the law of the river. Now, we may not run the plant. If we get our regulations through, that allows water swapping between states, where they can cut deals, Nevada can now work with Arizona and say, "Okay, Arizona, you don't need all your water, but we *need* water. And we don't only need water for *today*, but we need water for maybe fifty years out. Let's work out a deal." Or irrigation districts, "If you will fallow your crops, we can use your water. You're in a different state." Our regulations that we're proposing now that we will be issuing in draft form probably in another six months, that would allow that type of deal – water transfers and things like that. Seeing how that's accepted, we may *never* run that plant. But if our rules and regs are accepted by the states, and we see how that's going to play, we may say, "Hey, time out. It's cheaper for the federal government to cut a deal with some irrigation districts, that we will take *their* water, their entitlement, when we need it for Mexico, and never run this plant. But until we've got to that point, we have to consider that we're going to use that plant. And I think we will. I think that's our commitment. And people that think we're going to buy out Wellton-Mohawk are just crazy, because I don't think the government should ever be that strong-handed to put a whole community out of service, because it affects the whole town, the community, the income from the farms, and the labor situation. It just is everything, to sit and buy *them* out, so someday we may meet our commitment in Mexico. I don't think . . . So that's kind of where we are.

Water Transfers

Storey: You're sort of in the middle, it would seem to me, [of] an issue that's beginning to bubble and rise. And I'm seeing it particularly in speeches that are being given by Assistant Secretary [Elizabeth] Rieke and by Commissioner [Daniel P.] Beard,[24] where they're interested in facilitating the transfer of water from agricultural purposes to municipal and industrial uses. How do you see that playing out?

Towles: I think they're right on target, I really do. And it's not because I'm with this

[24] Daniel P. Beard served as Commissioner of the Bureau of Reclamation under the Clinton administration from 1993 to 1995. Mr. Beard also participated in Reclamation's oral history project. See, Daniel P. Beard, *Oral History Interview*, Transcript of tape-recorded Bureau of Reclamation Oral History Interviews conducted by Brit Allan Storey, senior historian, Bureau of Reclamation, from 1993 to 1995, in Washington, D. C., edited by Brit Allan Storey, 2009, https://www.usbr.gov/history/oralhist.html.

administration now. I'd say that until the day I retire. But I think that's the only way we're ever going to be able to satisfy the needs of the country. You know when the dams were built and the states got their apportionment of the water, those were years ago, and times have changed. Who would ever . . . Well, as you can see, *no one* would have ever predicted southern Nevada would be expanding and going like they are now. Now you can either be for it, against it, or really don't care, but the fact is, they're here (chuckles) you know? And look what happened in California during the time of the drought, which really wasn't that severe, but it was headed that way until it finally broke with the rains we got one winter. But you saw what they did to agriculture there. The voting block of people that had the control were in the cities. And these cities are going to decide the direction you go, just because they have that many votes more than the ag people do. And so, what you will see is the fact that you need to, before a drought hits, or before you're in crisis, you need to come up with some ways of allowing water transfers to take care of the cities. If you don't, what's going to happen, it will be handled through legislation, because they have the votes. And so, what our commissioner and the [assistant] secretary are trying to tell people [is], "Hey, you know, while we still have some time, let's work this out." And our regulations on the river hopefully will allow that. Now it's primarily in the Lower Basin that this is a big issue. Upper Basin hasn't developed like they thought they would, and so they've got water. Then it's a matter, do you want to allow them to be involved in water transfers between Upper and Lower Basins? It's very emotional. Colorado says, "We're going to grow, we're going to do this . . ."

Storey: To westerners, it is *certainly* (chuckles) an emotional issue.

Towles: Right! And so, I think if we keep it in the Lower Basin and work on our problems, the Upper Basin will watch us and say, "Well, okay, you're not bothering us." And so, the way we can do it in the Lower Basin is just through good water management and water transfers and how to handle the situation if a drought occurs. If a drought doesn't occur, so we're okay. But if it does, we need a plan, and that's what they're trying to work on. So, I think it's great.

Storey: These regulations for water transfers are sort of tied up with some of the legal issues I'm interested in exploring with you. Of course, the Colorado River Compact split up where the water was going to go. Western states who are affected by that are very jealous . . .

Towles: Very much so.

Storey: . . . of those allocations. And it sounds to me as if the government is trying to use regulations to affect long-standing water rights laws. Am I understanding it correctly?

Towles: Well, what we're trying to do, I think we'd like to look at it for, we're trying to get flexibility. I don't know, I've heard statements made by various parties that would say, "Well, if we can't get flexibility, we're going to change the law of the river." But frankly, you take that on, and you'll be in court for *so* long that you may win, but probably you won't be around to know if you ever did or not – it'll go that long. So, what we would *really* like to do is try to get some flexibility. And right now, you know, if you assume that there *is* water, plenty of water, it's just the way that its distributed, and you're going to take care of the cities in times of crisis – Phoenix, Tucson, Las Vegas, L-A. You're going to take care of them, and it's going to have to come from the agricultural sector. What you would end up doing is, still leave the law of the river intact, but have maybe a sub-agreement that in this type of a situation, "that we will step forward, *for a price*, whatever the price may be, we will fallow our land and let's give you our water until this crisis is over," or something like that. The federal government, I think, is in the mode of trying to facilitate, trying to make it possible for this to happen. Now the secretary is a water master of this river, and he *can* make decisions that will put things into operation. But he certainly doesn't want to be sued either. And so, I think we can work it out. I think there's got to be a little bit of give and take on everybody's part. But if we kind of facilitate it and try to arrange it, I think it can be done. It's not going to be easy.

Storey: Who is developing these regulations?

Towles: We are in this Region. This is our function.

Storey: This Regional Office is doing it?

Towles: That's right. One of those fellows that you had the name LeGrand Neilson?[25] His Division is . . .

Storey: Is working on it.

Towles: We've been working on it for years – it's nothing that just came up last week. They've been working on it for years, and our solicitor has been working on it in Phoenix. Bob Johnson is well-versed in it. He used to be head of 400. He had LeGrand Neilson's job before he became Assistant R-D, so he's well-involved. We've been working with the basin states: Arizona, California, and Nevada. They're all waiting. They all think they've got something . . . I think it'll be

[25] V. LeGrand Neilson participated in Reclamation's oral history project. See, V. LeGrand Neilson, *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, further edited and desktop published by Andrew H. Gahan, 2017, https://www.usbr.gov/history/oralhist.html.

favorably received. They all have worked with us to be sure that they've got their little ornament on the Christmas tree and "if there's something in it for me, I'll go along with it. But if there's nothing in it for me, I'm not going to go along with it" type approach. So, I think it'll be interesting when it comes out. We've briefed all of them on where we are. We haven't given them the final documents yet, but they know what's in it, and they've had input in the language. So, I think it will be received fairly well.

Storey: Now who are "they"?

Towles: "They" are the Lower Basin states.

Storey: The *Lower* Basin states, but not the Upper Basin states?

Towles: Upper Basin has also been informed, but we work primarily with the Lower Basin, because that is where the switching of the water will occur. We're not anticipating involving the Upper Basin on water transfers between Upper and Lower Basins. Some of the states are talking about that. I think Nevada would like to see that done and all that, but I don't think the other states will go for it. I don't know if that'll ever happen or not. That gets more complicated.

Storey: Yeah! Every time you add a western state and water . . .

Towles: Yeah, you got more problems.

Storey: Sure. What other kinds of issues are you . . .

Towles: Oh (sigh), I think that's probably about it – just about anything to do with water.

Storey: Let's see, the Imperial Canal is in your area, is it?

Towles: Yeah.

Storey: And the All-American Canal and all of that?

Towles: Yeah, all of that.

Proposed Area Offices

Storey: I noticed the map on the wall over here. Is that the proposed area offices?

Towles: That's the area offices, right.

Storey: It's already been established?

Towles: It hasn't. We've agreed [to] it among ourselves. It hasn't been approved by the commissioner, nor the secretary yet. That whole scheme, I think it's about ready to be approved, anytime now. I don't think there's a lot of controversy.

Storey: So, as I recall that's five area offices for the Region?

Towles: Well, let me see, I think we've got the Arizona and the Yuma, Southern California. The Region covers . . . We're not calling it an area office and the Regional Office – we're just saying the Regional Office will cover certain areas. Then Hoover Dam covers another one, so yes, you could say that there's five.

Storey: How many project offices are there currently in the Region?

Towles: About the same as there are area offices.

Storey: We had already pretty well gone to this concept, years ago. It's no change for us, it was very simple for us.

Storey: Is there a change in the amount of money and responsibility that is delegated to the area offices?

Towles: That's where the big change will come. We will give the area offices more responsibility with respect to all the resources: that's both human as well as natural resources. They will have responsibility for that territory that they cover. We'll be looking to them to know everything that's going on in that particular area, working with the congressionals, this and that. Still have a Regional Office that will take care of more or less engineering type things _____, but yes, we're putting a lot more authority down at that level, with the assumption that they know more about it than anyone else does. So, it'll be interesting to see how it works out.

Storey: Why have you chosen now to retire?

Retirement

Towles: Well, I've got forty-nine years, close to fifty years. The wife feels that "you'd better get out before all of a sudden you wake up and you got cancer or something and enjoy life a little bit." So, I kind of hate to leave right now. I wasn't forced out. I think the commissioner has told me many times, "I'd like to see you stay." But there is a time. And then with the downsizing of the organization, they've got

senior people that they need to place. And so, I didn't want to be sitting here, just doing what I *like* to do, while somebody may go out on the street looking for a job. And so, I told the commissioner, once he's made up his mind how he wants to organize and everything, I'll step aside, and then he can bring in whoever he feels comfortable with. So that's kind of the way it happened. I was thinking January, and then I don't think it moved as fast as far as reorganizing in Denver as they thought. (chuckles) I don't know if they've ever got it. Who knows?! And so finally I told him, "Gee, if I'm going to go, I'd like to go near the first part of the year, not in the middle of the year, because I'll be paid for my leave and everything. I'd like to get it into either the first part of the year and cut my income down, for tax purposes." Then he said, "Well, for sure we're going to have something shortly." And so "Okay," I said, "I'll leave the first of April," and that's how we kind of did it.

Storey: Oh, okay. Can I ask you about your retirement plans?

Towles: Why sure. I don't have any. I will probably go up to Alaska and look around. I've never been to Alaska, and I'd like to see that. It's sort of different than the normal forty-eight. And I've been to China for the Bureau, and Egypt, so I'd like to take the wife over there and let her see China. And so, we'll go and do that.

Storey: Tell me about going to China and Egypt, if you would.

Towles: Well, that's when I was in the Denver Office in the Engineering and Research Center. We were working on Aswan Dam in Egypt, a contract with the Egyptians – actually, it was under the State Department, U-SAID. And we had people over there operating the units and so forth. And so, I went over there and assisted in developing the contracts to get that work going. And then in China we were working on the Three Gorges Project with respect to an agreement with China to supply engineering assistance, and they would cross-train their people and our people. So, I went over there a couple of times to help them on that. Then I went to Indonesia and Djakarta and went up somewhere. We developed the Safety of Dams courses to teach the Indonesians how to maintain and operate some of their dams. This was through a request by the Royal Bank. So, I've been traveling quite a bit, so what I'd like to do now is take the wife over in some of those areas and let her see what I've seen. How much (chuckles) I don't know, we'll see.

Storey: Maybe visit grand kids or something too?

Towles: Yeah, we've got twelve grandchildren. See, this is my second wife. My first one passed away while I was there on the Palmetto Bend Project with cancer. And so, then I remarried a couple of years later, and its really kind of interesting, just sort of a side issue, that my first wife and I, we were in grammar school together, and her

folks worked for the Bureau of Reclamation, and *I* worked for the Bureau of course. And so, then we married and had two girls. One's a civil engineer and the other one's a nurse and married to a doctor, and they have their own practice in South Carolina, so they're in the professional arena. But then when I lost my wife, I married another lady in the Regional Office there in Amarillo, and she was in finance. And so, all my wives have been Reclamation, *I'm* Reclamation – it's just like Reclamation is our family. It's kind of interesting.

Storey: Tell me how you socialized, for instance, at San Luis, and then at Palmetto. Were most of your contacts to other Reclamation employees?

Towles: Quite a bit – especially when you're in a government camp. Now at Palmetto Bend, in the town of Edna, we bought a house within the town, and we did also at Los Banos. So, then we started to get more friends within the town, and things like that. But we were still probably closer to the Bureau people, even in those cases, because you work with them, and the women socialize and there's parties and that. But you also have outside acquaintances.

Storey: Did you make a conscious effort at Palmetto Bend and San Luis to establish contacts in the business community?

Towles: I did at Palmetto Bend: I joined Rotary, and it was only a five thousand population town, and we were involved a lot with local landowners in a small community. So yeah, I made a special effort there to be . . . I didn't make a lot of close friends, because I had to deal with the folks. But I attended things, and we were well-liked, and the kids were well-liked, and we meshed right in just as slick as a whistle with the people, because our values were about the same. That was a rather reserved part of Texas, the Bible Belt. Most of them were Baptists – we weren't – we happened to be Methodists, but it didn't matter to those folks. So, our values were all the same, and we were a good group of people. They often spoke how professional the Bureau people were, and there was a lot of disputes about building the dam. The townsfolk wanted it, the people that were losing the land didn't, so they sided with the environmentalists: All of a sudden, they became environmentalists, just to stop it. But they often said that, "It's not against you . . . Bureau people. We have nothing against you. We just don't want your dam here!" (laughs) So it was a good relationship, but yet . . . So that's kind of the way it was.

Storey: That was the River Authority that got us involved there, as I recall.

Towles: Right.

Storey: Well, I really appreciate your taking out all this time on your last two days!

Towles: Well, I appreciate . . . Yeah, I haven't done this in . . . (laughs) This has been quite a deal.

Storey: Well, I'd like to ask you again whether or not Reclamation researchers and researchers from outside Reclamation can use these . . .

Towles: Definitely.

Storey: . . . cassettes and any transcripts for research.

Towles: Anything they want would be fine. No problem with that at all.

Storey: I appreciate it, thank you.

END SIDE A, TAPE 2. APRIL 1, 1994.
END OF INTERVIEWS.