ORAL HISTORY INTERVIEWS

HARVEY WALTER BOYCE

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STATUS OF INTERVIEWS:
OPEN FOR RESEARCH

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Interviews Conducted and Edited by:
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HARVEY WALTER BOYCE

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Signed: Harvey Walter Boyce
Harvey Walter Boyce

INTERVIEWER:_____
Brit Allan Storey

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Introduction

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

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

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

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Oral History Interviews
Harvey W. (Walter) Boyce

Storey: This is Brit Allan Storey, Senior historian of the Bureau of Reclamation, interviewing Harvey Boyce in the Denver offices of the Bureau of Reclamation on August the 12th, 1997, at about nine o'clock in the morning. This is tape one.

Mr. Boyce, where were you born and raised and educated, and how did you end up at the Bureau of Reclamation?

Born in Long Beach, California

Boyce: I was born in Long Beach, California–1942. My dad was in the service and overseas. My mother, my aunt and uncle were living in Long Beach working in the defense contract industry with ~~McDonnell~~[1] Douglas. So I basically started off at Seaside Hospital, Long Beach, in 1942.

Returned to Boulder City after World War II

As soon as the war was over, we moved to Boulder City. That's where my dad had entered the service.

Educated in the Boulder City and Clark County School Systems

I was educated in the Boulder City school system. At that time, pre-1957-'58 time frame, it was part of the construction camp, Boulder City Project area, and so the schools there were provided through Reclamation under the Boulder Canyon Act auspices. About 1955-'57 time frame, the school system there in Boulder City went under the Clark County school system, so I did all of my elementary, junior high, high school in Boulder City schools.

Went to College in Cedar City and at Utah State, Graduating in 1966

From there I went to southern Utah to a small land-grant college at Cedar City. It's now a four-year school. At the time it was a two-year college, a satellite to Utah State. I completed my associate of science degree there, majoring in accounting and minoring in economics, and graduated there in 1963. I guess I ought to say that I graduated from Boulder City High School system in 1961. I went to Utah State, graduating there with the class of 1966, actually completing in December of '65.

1. Note that in the text of these interviews, as opposed to headings, 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 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.

Has a Masters Degree in Public Administration from the University of Northern Colorado, Greeley

I have a graduate degree, a master's in public administration, from the University of Northern Colorado-Greeley.

Was in the Naval Reserve and Served in the Navy 1966 to 1971

I spent time in 1965, December–actually April of '64~~, correction~~. I went into the Naval Reserve while in college, went into active duty 18 December of '65, getting my commission directly after graduating from college.

Was an Intelligence Officer until Medically Retired in 1971

I was commissioned in my reserve unit in Ogden, Utah, one of the first, if not the first, to receive a commission from that reserve unit. Spent from 1966, January of '66, through September of '71 on active duty with the Navy serving in photo-interpretive intelligence as a intelligence officer, and then also into strictly naval intelligence. I was medically retired in 1971 on a temporary basis, and then permanently retired in 1976.

Worked as a Lifeguard for the Park Service in the Summers of 1961 and 1962

Began my Federal career with the National Park Service, serving as a lifeguard. It would be the summer of 1961 at Lake Mead, and then I rehired with Park Service in summer of 1962 for about two or three days, at which time the Park Service was not able to upgrade me to a supervisor lifeguard, which they had me serve as in the previous year, 1961, as a supervisory lifeguard without the grade or pay.

Worked Briefly for Anderson Dairy in Las Vegas and Then Worked as a Relief Operator at Hoover Dam for the Los Angeles Department of Water and Power During the Summer of 1963

And so I terminated my service with the Park Service, went to work for Anderson Dairy in Las Vegas. I worked for them for about four or five weeks, and then was hired by the city of Los Angeles Department of Water and Power as a relief operator at Hoover Dam.

So my first *real* employment at Hoover Dam would have been in the summer of 1962. Again, summer of 1963 I worked with the city of Los Angeles at Hoover as a relief operator. Summer of '64 and summer of '65 I spent with the Navy on active duty for training, getting my OCS [Officer Candidate School] schooling in and completing that prior to my graduation from college.

Hired by the Regional Office in Boulder City as an Accountant in 1972

Then in 1971, I retired from the Navy effective October 1 of '71, and I was hired by the Boulder City–it would be the Lower Colorado regional office in the Finance Office as an accounting technician in approximately March of '72.

"I started off as a power accountant doing power billing and meter reading, operating reports associated with power system deliveries from Boulder Canyon Project, and then . . . the Parker-Davis Project. . . ."

I started off as a power accountant doing power billing and meter reading, operating reports associated with power system deliveries from Boulder Canyon Project, and then ultimately that increased to include the Parker-Davis Project.

Advanced from Being an Accounting Technician to Accountant and Auditor

Worked on Conversion of the Hand Accounting System to an Automated System

In my tenure at Finance, I served as an accounting technician. I later certified as a government accountant and auditor, converted from a technician to an accountant, serving in Finance as a cost file structure administrator during the conversion of the hand accounting system to the FAST, F-A-S-T, that's Financial Accounting System on Tape, which was the precessor to the current Reclamation F-F-S, Federal Financial Systems, accounting system. So I've watched the accounting system, at least in Reclamation, go from the old hand bank-posting-type spreadsheet format to its current automated system, and spent a great deal of time during the development of that process working with that.

Worked as Accounts Receivable Clerk, Cost Accountant, Fiscal Accountant, and Construction Contract Administrator

Worked as a accounts receivable clerk and a cost accountant. I've done some fiscal accounting, and also one of my major responsibilities was a construction contract administrator during the initial Reclamation involvement with the Navajo Project in Page, Arizona, when Reclamation got involved to provide a power source for the Central Arizona Project. I paid all the construction contracts, or at least Reclamation's share of the construction contracts.

Worked for Dale Imlay

During that period of time, working in Finance, I principally was assigned and worked for Dale Imlay, who at that time was the head of Cost Accounting and later became the head of Fiscal Accounting and then became the finance officer for Lower Colorado Region. A footnote here is that Dale Imlay and I both grew up in Boulder City. We knew each other as teenagers. Earlier, he was in the class of '58 in high school, so he graduated three years earlier than I did, but certainly I knew Dale as a youngster, and so it was an experience to go back and work with him.

In 1977 Moved to Western Area Power Administration as an Accountant

I guess that pretty much is my history as far as getting hooked up with Reclamation. In 1977 time frame, when the Department of Energy organization was being formed, which included Western Area Power Administration, I was offered the opportunity to be one of the plank owners of Western and came over in the original transfer as an accountant in Boulder City for Western. And at that time, even though I was officially assigned to Western Area Power Administration, I physically was still working in the Lower Colorado Regional Finance Office. It was just that I was being paid by DOE [Department of Energy] instead of by DOI [Department of Interior]. I did continue to do my work there specifically involved with the power accounting, power billing, and power statistical reporting.

Became a Public Utilities Specialist at Western

I continued in that role until probably 1978, early '79 time frame, when I applied for a public utilities specialist job with the Western Area Power Administration and hired on there in Boulder City doing that.

Western's Office in Boulder City Was in the Marshall Plaza until it Was Moved to the Mead Substation

At that time, Western's office in Boulder City was in the Marshall Plaza, which is a business plaza there, temporary quarters until permanent facilities were constructed at the Mead substation there in Boulder City, which is part of the original Pacific Northwest-Pacific Southwest Intertie concept, and that facility *was* transferred to Western, and the permanent Boulder City Area Office for Western was formed there.

Became a Supervisor and Director of Marketing and Rates at Western in Boulder City

My tenure with Western, I served as a public utilities specialist, eventually becoming a supervisor and director of marketing and rates in the Boulder City area office.

Worked on Automation of the Power Repayment Studies Project While at Western

While working for Western, I, as well as other former Bureau of Reclamation employees that had moved over to Western, and also including representatives from the Denver E&R Center, formed a task force to develop the power repayment program, to move that concept or that process of power repayment studies from a hand process to an automated process, getting that documented and certified that it complied with all applicable law and regulations. So I spent a great deal of time in that process.

When Western Moved its Office to Phoenix in 1990 Chose to Take Involuntary Retirement

From my tenure at Western, the decision was made by Western's administration to close the Boulder City Area Office and move all those functions to the Phoenix office. I opted to take involuntary retirement. I had twenty-five years'

Federal service in at that time, and so I resigned in favor of retirement in September of 1990.

In 1990 Joined the Staff of Nevada's Colorado River Commission in Las Vegas

I believe it was around the 6th or the 8th, and two days later went to work for the state of Nevada's Colorado River Commission in Las Vegas doing exactly the same type of work for them, except now, instead of being on the Federal side of the table, I was on the customer side of the table and was fundamentally there on the opposite side of the contract, those contracts that I had been involved with administering and setting rates on.

June 1993 Moved Back to Reclamation as a Reinstated Employee to Be a Power Operations Specialist

I stayed with the Colorado River Commission until about June of 1993, and I was offered an opportunity to come back to the Bureau of Reclamation in Boulder City as a power operations specialist, and, for logistical reasons, took advantage of that and subsequently came back aboard mid-June of 1993 as a power operations specialist, as a reinstated employee, not a re-employed annuitant, but as a reinstated employee.

In 1997 Joined the Power Resources Office in the Program Analysis Office in Denver, but Stationed in Boulder City

In 1997 Became a Public Utilities Specialist in the Power Resources Office

I worked in the Lower Colorado regional office from that time until February of '97, at which time I was offered a position with the Denver-based office, Power Resources Office, for the Commissioner, working under the Program Analysis Office here in Denver. And that gets me to date as to what I'm doing.

I'm now a public utilities specialist. My function within the Reclamation organization now is to be the coordinator for all of Reclamation's hydro powerplant financial performance as part of the benchmarking effort, which is also under the auspices of now the GPRA Act, Government Performance Reporting Act.[3] So that gets me to date, I think, as far as my professional tenure.

Storey: Good. What was your dad doing when you moved back to Boulder City in '45?

Father Lived in Boulder City and Attended High School in Las Vegas

Boyce: Well, before my dad actually moved back to Boulder City, I think it's important to note that living in Boulder City at the outbreak of World War II–and I guess it's a side note, that the high school students of my dad's era, pre-1942, living in the construction camp at Boulder City, there was no high school there. The grade

3. Government Performance and Results Act.

schools or the primary grades were provided for. The high school students had to go to Las Vegas, and so they went to the original Las Vegas High School, and that's where my dad graduated from. They had an organization, those students that drove to Las Vegas, it was called the Cabby Club, as I recall, and they used a station wagon, one of the old–and I don't know whether it was a government-provided vehicle or whether it was just one of the parents there, but they used a vehicle, and one of the older students was the chauffeur. So they drove back and forth to Vegas every day to go to high school.

Step–grandfather, Kelly Sweet Was an Electrician During Construction of Hoover Dam

But when World War II broke out, my dad was in the Navy. He was there living with his mother and stepfather during construction days. As I recall the story, my–it would be my step-grandfather, a gentleman by the name of Kelly Sweet, was a construction electrician working at Hoover, and most recently, within the last year, I guess, we discovered, or my dad discovered, via either information that he found from his mother or being told by his mother that Kelly Sweet was actually not only a very good electrician, but he was there undercover with the Justice Department or one of the Federal agencies, possibly in the FBI, but I believe it was under the Justice Department, basically to ensure that there was no sabotage during construction of Hoover. So he was, as they say, an undercover agent. We found that quite fascinating.

Father, Harvey Wood Boyce, Entered the Navy in 1942

After World War II His Father Hired on as a Helper for the Electricians

But my dad went into the service in 1942, and then after getting out of the service, he came back to Boulder City and hired on as a–I guess you'd just call it as a helper for the electrical gang there in Boulder City working for the Bureau of Reclamation. I recall, as a youngster, watching that group of electricians and helpers literally digging the post holes for all the various telephone poles that were placed throughout Boulder City as the town grew and as the infrastructure was built. They didn't have the luxury of hydraulic equipment like we do to dig post holes. It was done manually with pry bars, clam-shell shovels, and generally it was in the middle of the summer.

I remember vividly seeing them out, literally just Levis and work boots, a pair of gloves, and no shirts, in the sun, all of them out there digging post holes and then manually setting those telephone poles and then putting the cross-arms up, all the appliances on the cross-arms, and stringing wire. So I remember that very vividly, watching that work.

Luke Whalen Organized Construction of a Baseball Diamond in Boulder City

I remember also that a gentleman there by the name of Luke Whalen [phonetic], who was–I guess his title with Reclamation, and he worked at Hoover, he

was the mixed-gang foreman, and so he had a conglomeration of different trades and crafts that worked for him, but he was one of those gentlemen that [are] unique in life, that he had a great deal of interest in the youth of Boulder City and also the fact that most of the people that were working at Hoover at that time were quite young, in their late twenties, early thirties, a lot of them, of course, back from the war.

The entertainment in Boulder City, besides going to the local theater, was to play softball. So Mr. Whalen instigated this group of employees basically on their free time. They worked with Reclamation. They got some land identified in the proximity of the school area, and they built a baseball field. I remember, as a youngster, going down. The crews would come in on Saturday on their day off, and they would dig all the post holes. They set all the telephone poles, did all the rigging to light that field. It was quite an evolution. I remember going down on Saturday and working as a grunt for my dad while he'd be up on the telephone pole, and then we'd send him up tape or parts, fittings, whatever they needed. So I remember watching *all* the electricians and *all* the helpers from Hoover and the entire electrical gang. That was a Saturday evolution. And they literally put all the light poles up and light fixtures up, got the wiring all done in a couple of Saturdays, and then they were able to play softball at night, which seemed to be *the* entertainment for a great deal of the months there.

Baseball Leagues Formed in Boulder City

They were able to then play softball, and they formed a number of leagues, teams there in Boulder City, and they started playing. This would be like the kind of a men's league, I guess, and then some of the women formed a women's softball team.

Mother's Uncle Played on the Basic Magnesium Team Against Boulder City

But I remember mainly the men's team. They'd play like the firefighters, the fire department over in Henderson, at Basic Magnesium Industries. They had a field there. I guess the irony of it was that my uncle on my mother's side happened to be fireman over there, so we got to go over and visit them when we'd play in Henderson or vice versa.

Boulder City Damboree

Another old-timer that was involved, and actually the coach of the team, was a fellow by the name of "Pappy" Burt, and for the life of me I can't remember his first name. It may have been Paul. But he coached the team, and they'd spend every evening, practically, down at the ball field playing baseball. Of course, that became the center of attention during the Fourth of July when they started the Boulder City Damboree. That was initiated, I think, by the American Legion post there. I remember my dad was involved with that, as most returning servicemen were involved with either the VFW or the American Legion or the Elks Lodge.

Father Was Active in VFW, American Legion, and the Elks Lodge

My dad, I remember, was involved in all of those, going through the chairs and becoming post commander, etcetera But that's where I really remember most of the Hoover and Reclamation employees: Ross Salter, "Pappy" Salter, who ultimately was the director of visitor services down at Hoover for quite a while, a fellow by the name of Robert Kesterson, whose mom and dad had a *ranch* southwest out of Boulder City down in the area called Dry Lake, called the Kesterson Ranch. It's still there. It still belongs to the Kesterson family. I remember that those people, while they–it was a small family.

". . . it was a real small-knit little group there an Boulder City . . . the trades and the crafts, they seemed to associate together, and . . . the white-collar workers or the GS-level at that time, were kind of their own little group . . . while it wasn't a formal caste system, there *was* a caste system, or at least you certainly felt a caste system between the workers and the administrative type. . . ."

It was a lot of folks in Boulder City, probably not nearly the order of magnitude that we have today, but, nevertheless, they associated together not only professionally but also socially. So it was a real small-knit little group there an Boulder City, especially if you look at it from the perspective of a white-collar, blue-collar, the people that were involved in the trades and the crafts, they seemed to associate together, and the people that lived on the hill, the white-collar workers or the GS-level at that time, were kind of their own little group, their own circle of people. It was very interesting in Boulder City to grow up in a government camp, because while it wasn't a formal caste system, there *was* a caste system, or at least you certainly felt a caste system between the workers and the administrative type.

***". . . my* first recollection of our home in Boulder City was a kind of a tar-paper shack. . . ."**

I remember *my* first recollection of our home in Boulder City was a kind of a tar-paper shack. The government had built a group of about two room dwellings there in Boulder City called demountables. Demountable. If you ask me to spell it, I don't know, and I don't know where that name came from, but it was basically a very small house. As a matter of fact, there would be about four of them on what I would venture to say would be a standard lot. And so I remember our first one was up on the top of Avenue M, which was not but about two or three blocks from the house that my dad lived in when he went into the service, which was over at the very top of Avenue K, and that's the home that Kelly Sweet and my grandmother had at the time. But that's the first real house that *I* remember living in, and I remember there was basically a bathroom and living room combination kitchen and maybe a bedroom. A lot of the people that my folks associated with–

END SIDE 1, TAPE 1. AUGUST 12, 1997.
BEGIN SIDE 2, TAPE 1. AUGUST 12, 1997.

Storey: So a lot of the people your folks associated with lived in that kind of houses?

Boyce: Yes. There was quite a establishment of those type of homes on Avenue M, which at that time was the furthestmost easterly north-south oriented street in Boulder City. If you went on the other side of Avenue M going east, you were in the desert. On the south area of town there was also, down around the–it would be the Fifth Street, which is now where the high school park complex's baseball fields, all of that area in there was also these type of houses, and then Reclamation built or *had* built, I don't know whether it was actually Federal employees or contractor, but I believe it was Federal employees that built two-unit adjoining homes. You'd almost call it like a duplex today, I guess. That's my recollection where Dale Imlay lived, was down there in one of those homes. Dale's dad was the blacksmith for Boulder Canyon Project at the time. I remember another one of my friends, Everett Dennison [phonetic], lived down there also in one of those demonables for a while, and his dad was a heavy-equipment operator and a rigger down at Hoover.

Dad Was Able to Apply for a Better House

Ultimately, or subsequently, my dad, after having enough time to accumulate points to bid into a higher house, the government had apparently, as I understand it, had gone into–I believe they came out of the northwest area, they brought in what they called Vancouver homes. I don't know whether they were physically moved there, trucked in and set on–they were actually set on pylons, because I remember you could actually get underneath the house, but I believe they were actually trucked into Boulder City, and a number of them were brought in. These were probably the first what I would called wood-framed homes that I remember we lived in, and we moved into one. It was on the corner of 6th and G Street, brand new to us, and I think we were the first family to move into that. We had a nice corner yard, a lot of grass.

I remember the grief that all of the people that basically put these houses down with pylons in the middle of the desert, quite frankly, but I remember everybody–it seemed to be like a neighborhood get-together as everybody helped everybody put their own lawn system, lawns in. I remember going with my parents to haul blow-sand in to cover the rocks and get a good base down and get a nice lawn, get trees established, in that whole neighborhood.

The interesting part about–those homes were placed on what would be the southern boundary, oriented east to west fundamentally–was that those homes were about on the southernmost exposure to Boulder City. If I looked out the back door of that house, there was a house across the alley that backed up to the alley, and that would have been 7th Street. The southernmost side of 7th Street was the desert, and so we were literally down where it was not at all uncommon to have lizards, horned toads. I remember chasing a sidewinder down the street. It was not at all uncommon to see those type of critters in close proximity to the area.

Little Theater

The other thing that was interesting is that there was in that location a lot of World War II-type Army-constructed buildings. Probably four doors down from our house going east on 6th Street was what they called the Little Theater, and it was an

Army-constructed theater. It later became the local Boulder City place to hold plays and have dances. I remember it was Friday night, Saturday night, they used to square dance down there–my parents and their generation. Bands in there, people like Tommy Nelson, who played with Liberace's band, he was also an electrician, they would come in, and there was a lot of people that played various instruments, and they formed little groups. So there didn't seem to ever really be a lack of people there to provide music so that they could dance, square dance, do whatever they wanted to do.

Mother's Day Program at the Little Theater

It was also a good place to put on plays. I remember, as a youngster, doing a Mother's Day program there. I think I was the "M" letter of the word "Mother." I remember being terrified, being up on that stage, having to do my little bit.

National Guard Armory

But the other part was across the street, would be west from my house and up about two doors, was the National Guard Armory, again a hold-over from the old camp days when the Army had been there in Boulder City.

Army Administrative Building the National Park Service Used for Offices

Further up, probably from 6th Street then up on the corner, would be the south, southwest corner of 5th and G was, I recall, probably an administrative-type building that, again typical of that era of construction of Army buildings, up on pylons with enclosed corridors that you would walk from section to section.

The Park Service started off in that building, and I remember my friends and I, as we grew up, would go over there to where the naturalist in the Park Service, a fellow by the name of Russell Grater, was there. By the way, there's an interesting contact for you, too. He's still alive and living in Boulder City. He was a naturalist. But they would have samples of the various indigenous wildlife as well as flowers and plants. That was a big thing for the kids to go over and tour that, and they were always very helpful about coming out and explaining to us, not that a lot of us at that young age remembered it, but certainly it was where you got a chance to see a Gila monster and various types of the snakes that had been captured there. I think they had them in formaldehyde or something, but they were there in that area.

Attending Grade School and the Big Snow in 1948

I remember, going to grade school, I used to have to walk from my house up to–this would be going north up G Street to the grade school, which is now the Boulder City City Hall and Recreation Department, that's where the grade school was held. All six grades–well, kindergarten through sixth grades–were held in those two buildings. I remember going to school there and remember in 1948, I believe it was, we had the big snow that gripped the whole nation at that time, and it was quite a

shock to all of us in Boulder City to see snow and to have that much snow stick around for as long as it did.

I don't recall who the first "principal" or superintendent there in Boulder City– I'm not so sure. It may have not even been Elton Garrett involved, because I know even though he ultimately went into the newspaper business and that type of work afterwards, I believe he started out as a schoolteacher, but his wife, Madeline Garrett, I remember, was instrumental in my being in the Music Department. It seemed to me that the principal at that time was a gentleman by the name of Mr. Keely [phonetic], and I know we all feared Mr. Keely because there was a strong rumor that he had a huge *paddle* that he was not a bit bashful about using, and everybody was terrified to go to the Principal's office. But his office was in what is now City Hall in Boulder City.

Construction of the High School in Boulder City

I remember watching the present high school complex being constructed. Of course, it's right on the south edge of 5th Street with Avenue G on the easternmost exposure and Avenue B on the westernmost exposure, and, of course, living on the corner of 6th and G, I, as a youngster, remember that area being graded off. That's, of course, what used to be where the Park Service and the old armory was. Those buildings were left intact for a while, and then they eventually were knocked down as the school grew out to encompass that entire geographic area.

As a youngster, I remember a gentleman by the name of Osborne Traasdahl. To everybody in Boulder City, he was always known as "Frosty" because he had a beautiful white head of hair, and he was a very large man. He'd drive a–I don't know whether it was a D-6 or a D-4 or whatever, but I remember hours on hours he was out there on that caterpillar grading that land, getting it prepared to start building the high school and the junior high school. So I remember the Boulder City High School being built, literally playing over there after construction hours as it was being built.

Went to Junior High School in the New School Complex

When I completed my sixth grade, I got to begin my junior high, actually, in that new complex, so I kind of felt like I was part owner in that. I had not only watched it being built, but I got to be one of the first to attend there.

". . . it's been interesting to watch Boulder City evolve from that aspect, coming from a construction town and ultimately, I guess, in '58-, '59, being granted the authority under the Boulder City Act of 1958 of actually incorporating and becoming its own community and seeing the key people that had been involved . . ."

I guess it's been interesting to watch Boulder City evolve from that aspect, coming from a construction town and ultimately, I guess, in '58-, '59, being granted the

authority under the Boulder City Act of 1958[4] of actually incorporating and becoming its own community and seeing the key people that had been involved, not only as business people but also with Reclamation in formulating that beginning city government and the charter, etcetera.

Boulder City Theater

For entertainment, going to the movies in Boulder City, Boulder City Theater. There again, that was kind of a landmark in Boulder City, because it was one of the few buildings that actually had some type of cooling system in it.

". . . construction workers, so I've been told, that worked night shift and that, would literally go to the movies during the day and pay a dime or whatever it was to get in at that time and literally sleep in the theater because it was the only place that they could really get a cool day's sleep . . ."

I think it actually used the chilled-air system, but construction workers, so I've been told, that worked night shift and that, would literally go to the movies during the day and pay a dime or whatever it was to get in at that time and literally sleep in the theater because it was the only place that they could really get a cool day's sleep, actually, rather than trying to sleep in the dormitories, which were *not* air-conditioned. I'm not even sure that they even had swamp coolers at that time–in the early days. I think as swamp coolers became developed, they were added on, but the early days of construction, as I recall it and as I've heard people describe those barracks and the dormitories, they didn't have the luxury of even a swamp cooler.

Storey: So it was during those construction days you're talking about when they came in and slept in the theater?

Earl Brothers

Boyce: In the theater, yes. And that's pretty widely discussed, I guess. The fellow that *I recall*–I mean, at least in my memory, that was involved with the theater, was a fellow by the name of Earl Brothers, and he was one of the most gregarious men and treated everybody wonderfully. I mean, as a youngster, everybody knew Mr. Brothers, and he would always–I recall when you'd see him and you'd say, "Hi, Mr. Brothers," it was always, "Howdy, partner. How ya doin'?"

So we'd go to the movies and, of course, Saturday matinees when you'd get to go see the serials and all the latest films that were out. That was where we went Saturday. We went to the matinee.

Football, Freshmen, and a Bonfire

And I remember for the high school students, as the high school began to grow in Boulder City, as part of the football deal they used to start the football season

4. Boulder City Act of 1958, Act of September 2, 1958, Public Law 85-900, 72 Stat. 1726.

off, they used to have a tradition–matter of fact, I think I was one of the last to be involved in it–where the senior class members, seniors and juniors, would take it upon themselves to initiate the freshmen into high school by spending the summer basically going throughout Boulder City in whatever vehicle they could beg, borrow, or steal, and gathering up *anything* that was flammable, scrap wood, cardboard boxes, whatever, and they would built quite an edifice at the lower part of Boulder City and then before the first game of the season, they would have this huge bonfire and do all the pep rally-type stuff, which always terminated in a huge snake dance of students throughout Boulder City, and it would always terminate at the theater. Mr. Brothers would basically donate an evening's film to the high school students.

Worked for Earl Brothers

I remember working for him at a very early age delivering flyers for the movie house. Every Saturday morning I'd go up and take my wagon, as a matter of fact, and we'd get a load of these handbills for the theater. We'd go all over Boulder City, to every house and apartment, and deliver handbills to each house. So I did that. That's when I got my Social Security card. I had to have a Social Security card to do that job. It didn't pay much, but that's when I went to work for Mr. Brothers. He was in Boulder City for quite a while, had the Visitors Bureau across the street from where the theater was.

Going to a Movie and the Sweet Shop

I also recall that next door to the theater was a café, I guess you'd call it. It was called the Sweet Shop, and I remember my dad worked in there as a fry cook, just working extra jobs to, you know, help make ends meet with a young family, and it was always a treat to go to the movies with the parents, because we'd generally go up and we'd stop at the Sweet Shop, and we'd have a hamburger and a Coke and go to the movie. The theater at that time didn't have a snack bar at all, so to have penny candy or a soda or something like that, you had to go to the Sweet Shop, and they had a glass counter there with all the display of the various candy. So everybody going to the theater would always stop at the Sweet Shop first and get their penny candy, and then they'd go on into the movie. Then ultimately Mr. Brothers put in a small snack shop which basically was just a popcorn machine, and he would sell popcorn.

The fellow that operated the cameras and that was a guy by the name of Mr. Roper. Mr. Roper had the building–and actually it wasn't a building because the theater [was] in a complex, it was one huge building with multiple fronts on it, the Sweet Shop being one of them, which would be on the eastern side. If you were standing looking at the front of the theater, it would be on your left-hand side. Mr. Roper had the radio repair shop. Of course, television hadn't started yet, and so he had a small electronics repair store on the right side, and then immediately adjacent to that, the rest of that building was a hardware store.

Grace Community Church and Other Churches

Across the street on the northern side of what's–I guess that's ~~Wyoming~~–is it ~~Wyoming? Colorado? I'm not sure. Must be Colorado. Let's see. Wyoming~~ [Arizona] Street, I believe, is the one that the Grace Community Church is on, and I can't remember what the next one up is, but basically that was one of the two major streets in Boulder City downtown for businesses, the other one being what was called Boulder Highway or Nevada Highway, which is Highway [93] ~~95~~, I believe it is, or the old Highway 95 that transited through Boulder City by the regional office complex and that.

The other street there, Wyoming, is where Grace Community Church, which was the first real community church main structure was built there, and it was a non-denominational church. I remember going there to summer Bible school, that they had that located there and then ultimately the Episcopalians built a church there, the Mormon Church built a church over on Utah Street–well, actually it was an offshoot of Avenue G. But I remember the bank, Bank of Nevada, I guess it was, was across the street from the theater. There was the drugstore to the–it would have been on the eastern side of the bank.

Working for the Visitors Bureau and It's Souvenir Shops

There was the Visitors Bureau on the west side of the bank. I remember, as a youngster, getting a job delivering telegrams for the Visitors Bureau, and again Mr. Brothers owned that as well as the theater. The Visitors Bureau was probably the first commercial venture that was allowed, actually, on Boulder Canyon Project. There was two outlook points, one on the Arizona side, one on the Nevada side, where a little, probably about six-foot by six-foot building was established there where people could stop and look out at the river or look down on the dam, but there was also this little souvenir store there that was a subsidiary of the Visitors Bureau.

As a teenager, after I was able to drive, I had gotten my license, I worked for the Visitors Bureau summers and weekends manning one of those outposts and selling souvenirs–postcards, film, pieces of the transmission line that they had cut and laminated with lacquer or something like that, as being a souvenir of Hoover Dam. So I spent a number of years driving back and forth to Hoover on the weekends or during the day in the summers.

Earl Brothers Moved to Page When Glen Canyon Dam Was under Construction

I had quite an employment history with Mr. Brothers and then the people that took over his interest there when he moved to Page, Arizona, when that became a construction town. He went up and did about the same type thing. He put a theater in there and was instrumental in a lot of the beginning businesses of Page. Mr. Brothers left, and a fellow by the name of Mr. Manus, John Manus, took over. I assume that he bought Mr. Brothers out, inasmuch as he had worked for Mr. Brothers kind of as the manager of the Visitors Bureau. So I worked with him for quite a while. I knew Mr. Manus very well and had a long tenure with him as an employee. Those, of course, have all since gone by the wayside. There is one of the blind vendors that has

taken over that type of service there associated with Hoover and also has a facility in Boulder City, but it's not in those original buildings.

Boulder Dam Hotel

Mark Swain, Bill Belknap, and Cliff Segerbloom

The other thing that I remember vividly is the old hotel, which is, of course, now a national historic site, but in the basement of the hotel there was a fellow by the name of Mark Swain [phonetic], who was quite a photographer, and he, along with gentlemen by the name of Bill Belknap and Cliff Segerbloom, probably three of the pioneers as far as documenting the Southwest and Boulder City and the lake. Bill Belknap was a tremendous photographer. Mark Swain was a tremendous photographer. Segerbloom was a tremendous photographer but more of an artist and is now world-renowned, has since passed away. Actually, all three gentlemen have passed away. But they had a studio, a portrait studio, in the basement of the old hotel.

I believe there was an old radio station there at one time, a local AM station there. I remember that out in–I guess it would be the southeastern part of Boulder City they had a golf course, but it was no greens, it was all dirt, and the pins were all in a kind of a–as I recall, it was a wooden-framed retaining box to actually have the hole in a little bit of a reasonable putting surface, but it was dirt. There was no greens on it.

Of course, the old rifle range that was built by the Army for qualifying the soldiers, and still is, still is an active rifle range, I remember going out there and learning how to shoot a rifle.

The "B" on the Hill above Boulder City

Then, of course, the landmark of Boulder City at that time was the high school had built–or not built, they had put a big block letter "B" with whitewash on this small hill that was just south and east of the high school, and it's now been done away with with homes being constructed on it, but "B" Hill was the place that everybody went, and it was a *tall* hill for youngsters to climb.

But that's also one of the things that the freshman students got to do every summer, is not only collect the material for the bonfire, but they got to up there under supervision from the senior classmen to re-whitewash that big block letter "B." And, of course, all the high school football games, they would go up and they had smudge pots, basically using bunker oil and that. They would align that and light it during the high school game so the block letter "B" was all outlined, you could see it from the stadium.

END SIDE 2, TAPE 1. AUGUST 12, 1997.
BEGIN SIDE 1, TAPE 2. AUGUST 12, 1997.

Storey: This is tape two of an interview by Brit Storey with Harvey Boyce on August 12, 1997.

We were just talking about the first superintendent.

First School Superintendent He Recalls Is Elbert Edwards

Boyce: The superintendent that I recall, and like I said, Mr. Garrett may have been, and certainly I wouldn't be a bit surprised, but the first superintendent that I remember of the Boulder City High School would be before it became part of the Clark County School System was a very tall, stately gentleman by the name of Elbert Edwards [phonetic], and he was quite an historian. He used to regale the students during assemblies with long dissertations about John Wesley Powell and his discovery of that area which we lived in. He was quite a Nevada historian and a published author, quite frankly. But I grew up with his two sons. Actually, he had more than two sons. He had five, but he had a set of twins that were about my age, Keith and Carl, identical twins, and they used to have great, great fun keeping their teachers confused as to which one was which, and they would, more often than not, interchange classrooms and would really drive the teachers quite crazy.

Mormon Church and Dime-a-dip

I remember, again because of the small community, family-type environment there, when the LDS [Latter Day Saints] Church, the Mormon Church, was constructed there. It wasn't just church members that worked on it; it was the town folk came and helped, and to help pay for that building, the local church members there would put on–I think it was about once a month–what they called a dime-a-dip dinner there. Literally, when it started, it was being held in the *old* church building up on Avenue G and Utah. It started there as a fundraising. But on a Friday night about once a month, all of the various women would put together like a big potluck dinner, and they'd have, oh, spaghetti and maybe meatloaf and ham and chicken or whatever, and everybody went to the dime-a-dip, and everything cost you a dime. For every helping, it was a dime.

So growing up, I remember we'd go participate in that, and then later on, as they started to actually build the permanent facility there across from the high school on 5th Street, as soon as they got a roof over their head, it had become such a popular event that they needed more room to hold everybody that would come to it, so they started literally holding it in the unfinished building, in the recreational area there. The tables were sawhorses with two-by-sixes stretched out, and ladies would put white paper, butcher paper, down on that, and that's where everything was served. I remember my mother preparing dishes and taking them down there and doing her thing once a month. It became quite a community event. It wasn't just a church social, it was a social, and it was where people went Friday night once a month to meet with their friends and have a nice dinner and to socialize and whatnot, and they even occasionally would have a dance in there afterwards. So it was quite a community center, that type of thing.

". . . as every teenager that I think ever graduated from Boulder High School said as they drove off . . . to college or places of employment, "I'll never be back," and so I made those fateful utterances myself and went off to school in southern Utah. . . ."

Let's see. From that aspect, I guess, just watching Boulder City grow as it did, of course, and then as every teenager that I think ever graduated from Boulder High School said as they drove off, either to the East or the West en route to college or places of employment, "I'll never be back," and so I made those fateful utterances myself and went off to school in southern Utah.

"After getting out of the service, I came to the conclusion Boulder City was a nice place to raise a family in . . ."

After getting out of the service, I came to the conclusion Boulder City was a nice place to raise a family in, because it was one of those communities, especially before the advent of dial telephones, you picked up the phone and the operator said, "Number, please," and she knew who you were and where you were calling from, because, of course, they used the old pegboard or cordboard systems.

Telephone System in Boulder City

I remember that one of the ladies there, I don't know whether she was the chief operator of that, but Mrs. Bush, she was one of those very stately ladies, the typical high-heeled button shoes almost, hair in a bun, and she was a large woman, and she was very intimidating to a youngster. I mean, she was a very nice lady, but she was, you know, from a youngster to an adult perspective, she was very intimidating, and she was very adamant that the phone system work well and was efficient. Her husband, as I recall, he was involved with the hardware store at one time or sold insurance or was in that type of line of work.

But then as the town grew, of course, went into the dial telephone system. So it used to be, you know, like any small town; the operator was the center of information. If you wanted to know who won the ball game when the high school was playing out of town, you called the operator. "Well, have you heard the score?" "Yep," because somebody would have eventually called in and she would never say she eavesdropped, but certainly the news got around.

The Boulder City Hospital and Doctors in Town

I remember that before the–even though the government will–or actually it wasn't the government, six companies built a hospital in Boulder City up on the corner of Avenue I and~~–golly, I believe it was Colorado. No, it wasn't. It wasn't either. It would have been–isn't that terrible, can't even remember the name of it.~~ Arizona. Arizona Street, which was the street that the bank and the theater fronted on. I remember that's where I went to, I believe, to have my tonsils taken out, as I recall. Certainly my brother's tonsils were taken out there, and I've been in and out of there.

[I] remember our doctor there was a guy by the name of John Roberts. There were two or three other physicians in town, but we went to Dr. Roberts, and Dr. Roberts, he had two children. One was older than I, a young man who I think eventually became a doctor *also*, and then his daughter was my age, a beautiful girl, of course was the girl that *all* the fellows wanted to date because she was very attractive, very blonde-headed girl. The irony of that, Dr. Roberts' wife ultimately–I don't know whether they had a divorce or what, but she ultimately married Mark Swain years later. I mean, it was one of those type things.

Mark Swain, Bill Belknap and Cliff Segerbloom

Bill Belknap, let's go back to him for a moment. He and Cliff Segerbloom–I don't believe Mark, at least initially–were involved in moving from out of the basement of the hotel to building a photography studio there right on Nevada Highway and I guess it'd be Colorado, and it had a basement where they'd actually process the film, develop the film, etcetera Upstairs they had a studio, and that's where I really think Mark Swain, Cliff Segerbloom, and Bill Belknap started to go their various ways.

Mark got involved more in the entertainment industry, becoming like a public affairs person for one of the major hotels or hotel conglomerates in Las Vegas before he passed away.

Bill Belknap principally had the studio there, and Bill Belknap had two children, again about my age. But Bill ultimately became such a renowned photographer, a lot of his work you'd see in the *National Geographic*, especially if it had to do with the Desert Southwest or local flora or fauna-type thing in the Desert Southwest, just a *tremendous* photographer, and he ultimately was under contract, I believe, to NASA, maybe through his *National Geographic* relationship. He participated in doing a lot of photography during the recovery of the early space capsules. I've been in his home, didn't live but a half a block from him at one time. As I say, I grew up with his kids, so I was in and out of his home all the time and saw a lot of his work, and just a *tremendous* photographer.

Chris Segerbloom, while he probably started out as a photographer also, became more well known in the Desert Southwest as an artist, principally in watercolors and that type of work. A lot of his works are hanging throughout–I know his wife, a schoolteacher. I remember having Mrs. Segerbloom in high school, I think, in government, and she's now a state senator or state representative in government. The Segerblooms also had a couple of children, boy and a girl. The boy is now a key person in the Democratic Party in the state of Nevada, I know, fairly responsible and involved in that. After she retired from teaching, I guess her love of political science and that, she decided to run and has been quite successful as a congressional person in the state legislature.

Fire Department and Ambulance Service in Boulder City

I remember the old hospital. As I got older, we didn't have a *paid* fire department. We didn't have a *paid* ambulance service. It was all volunteers. As a matter of fact, the fire department–let me talk about that first–was made up of basically the people that worked at the Federal garage there in Boulder City. Because of the size of the construction effort, of course, there was a lot of equipment that had to be maintained–vehicles, trucks, buses, cranes, forklifts, you name it, so there was a very extensive Federal garage there.

"Of course, all the . . . more senior management type, they would have a sedan or something like that or there would be three or four or five of them that would car pool, but they went to the government garage and they picked up their vehicle, and they went to the dam that way. . . ."

Of course, all the workers that went to Hoover either had a vehicle assigned to them, especially the more senior management type, they would have a sedan or something like that or there would be three or four or five of them that would car pool, but they went to the government garage and they picked up their vehicle, and they went to the dam that way.

"The employees like my dad and all the people I knew, they went to a designated bus stop, and there was a series of government buses that literally snaked through all the streets of Boulder City picking up . . . so the workers went to Hoover Dam on buses. . . ."

The employees like my dad and all the people I knew, they went to a designated bus stop, and there was a series of government buses that literally snaked through all the streets of Boulder City picking up all of the workers shift by shift, especially when they were working three shifts at that time, and so the workers went to Hoover Dam on buses. You really weren't supposed to bring a private vehicle. It really wasn't a smart idea, I guess, because the parking facilities were extremely limited.

Wife's Dad Worked in the Federal Garage and in Las Vegas at a Garage He and His Brothers Owned

The Federal garage is where my wife's dad started on. He had moved out from Nebraska via Colorado. As a matter of fact, he used to take care of golf courses here in ~~the Loveland-Boulder–~~ I guess it was in the Boulder area, and then ultimately moved out to Las Vegas in the, I guess, about mid-thirties to join his brothers in an automotive garage that they had in Las Vegas on Stewart and about 6th Street, I guess it was, the old Adams Brothers Garage. The building is still standing there today. It's still an automotive shop. But my father-in-law broke in as a mechanic working for his brother "Hoot," and his other brother, Wally, was a glazier and did not only glass work for automobiles but did some glazing work there in early Las Vegas.

Mother-in-Law Lived at the Mormon Fort in Las Vegas for a Time

Las Vegas at that time was dirt streets, and there wasn't a whole lot of them, and the sidewalks were boardwalks, literally. [He] I met my mother-in-law, she lived at the old Mormon fort there as a youngster living with her family there, and she worked at the old Woolworth's store there as counter help. So they got started there, but he ultimately got hired on as a mechanic at the government garage. So I had a lot of experience going over to visit with him and meeting the mechanics there at that government garage.

That government garage, even though it wasn't in the same location, it ultimately became what is now the Railroad Street complex for the Lower Colorado Region. That had been a warehouse at one time, and then they converted it into a garage and added on to it there. At that time, my family was living just on the corner of Arizona Street and Cherry Street, and the government garage was right on Railroad Street. Which was the next street up from Arizona going north would have been Railroad Street. So when I started dating my now-wife, they lived over on Avenue B, right behind the *old* government garage, which is the government garage *I* remember growing up, but that was also where the fire station was, and so the "fire chief" was, I think, the garage foreman, and the mechanics that worked there all lived in government housing there on the upper part of Avenue B and–let's see, that would be Colorado Street.

Colorado Street was kind of in the L-shape of [Avenue] B intersecting Colorado, Colorado moving out to what was Nevada Highway. Those homes right in there were where the mechanics and the equipment operators that drove the buses. They lived there because they were also the volunteer firemen, and so if there was a fire, the police department, via the telephone system, they had ringers or buzzers in those homes so that they would initiate the fire alarm. Not only was it a fire siren that was up on a telephone pole there that would go off and wail, to let people know that it was time to man the fire equipment, but these buzzers would go off in these homes, and these guys would get up and run to the firehouse and take the fire equipment to the site.

Boulder City Firefighters and the Damboree

Again, the fire department was the people that were charged with the Fourth of July gathering up the more or less professional fireworks that would be displayed, and they would be the ones that would set them off after the ball game on the Fourth of July. There again it would be the south end of the baseball field that I remember the workers all building, Fourth of July in Boulder City they had what they called the Damboree, and that was located on the park area between–well, actually it'd be where the old post office was, and the library at that time, it's now the location of the Boulder City Police Department, and the Senior Center is still in those buildings. But the post office was upstairs in this building. If you looked at that building, you would be facing east on California Street. To the left or the upper part, it would be the north side of that building, you went downstairs into the library, and if you went to the right side of the post office downstairs, you went to the police department.

Probably I ought to talk about the police department, because the police department, of course, during construction days, those were Federal [rangers] ~~marshals~~ because of it being a construction camp. And, of course, being during World War II, it was a very sensitive period of time.

". . . as youngsters growing up in a Federal town, we were all very religiously lectured about your decorum in town. I mean, you were in a Federal camp and you were there basically at the pleasure of the government, and you behaved accordingly. . . ."

Just a side note, I remember when we moved down into the new Vancouver home on 6th Street, that the family that lived out *our* back door across the alley, which would have been on the corner of 7th and G, was one of the rangers, Orville Martin, and his boy was about my age, so we grew up together. I think Orville eventually went to Page also, as a lot of them did, over the transition from one construction camp to another construction camp. But there again, that's why, as youngsters growing up in a Federal town, we were all very religiously lectured about your decorum in town. I mean, you were in a Federal camp and you were there basically at the pleasure of the government, and you behaved accordingly. Of course, there was always the schoolyard stories about what would happen if the marshals got you, and so one did not want to run afoul of the law, so to speak, because you probably wouldn't have any serious repercussions as far as that, other than the embarrassment of being hauled off to the police station and having a strong lecture from whoever happened to be on that night. But certainly your father would hear about it the next day at work from his supervisor, because it was kind of a circuitous route. It would be reported to the Reclamation management, and those things just weren't tolerated. So you just did not want to run afoul of the marshals there in Boulder City.

Northcutt Ely

It was an interesting group of people that we dealt with. Of course, one of the things that I had the pleasure of, kind of in retrospect, is that the–I guess you would call the city manager during the construction days, and my early life in Boulder City was–and I don't know whether he was the "regional director" there or not, or whether or not it had become a region, identified as a region, Boulder City at that time, but certainly the man in charge of Boulder City as a construction camp and community was a gentleman by the name of Sims Ely. I personally did not know Mr. Ely. My dad did. But I did have the experience of working with Sims Ely's son, a fellow by the name of Northcutt (Mike) Ely, who just recently passed away in his–ninety-three, ninety-four years old.

Storey: How recently?

Boyce: Just in the last two or three months, I believe. Anyway, I can talk more about Northcuttt. To his friends he was referred to as Mike, and I don't know how you get from Northcutt to Mike, but he would introduce himself to his friends, or I guess if you were considered to be a friend, he would allow you to call him Mike. I've

worked with Mike extensively with my work at Western in developing the second series of contracts for the sale of Hoover power.

The First Contracts for the Sale of Hoover Dam Electricity Ran out May 31, 1987

Of course, the first series of contracts were executed in the late thirties, early forties, and they were fifty-year life contracts, and they all expired on May 31, 1987.

Well, at that point in time, May 31, 1987, I was then marketing and rates director for Western, so it fell upon me and my staff to develop the marketing criteria–well, not precisely the marketing criteria, but certainly the regulation for the pricing of the Hoover power for the next contracting period of time. So I became acquainted with Mr. Ely, and I remember my first experience of meeting Mr. Ely was somewhat intimidating. People that were involved in developing the marketing criteria, while I interfaced with them, they had more exposure to Mr. Ely while that criteria was developed, and I came in kind of towards the tail end of that.

My first exposure was, we were holding a public meeting at the Tropicana Hotel in Las Vegas, and I had been told about this Northcutt Ely that just literally ate people alive. He knew the history of Boulder Canyon Project from A to Z, had been extensively involved in the original contracting period, because in the 1940s, he was a solicitor for Interior and worked as legal counselor or special counsel to then-Secretary of the Interior [Harold] Ickes. There's a story that I've heard Mike tell a number of times and it's been well documented–I won't recount it here–about his being the principal to get the contracts signed in L-A and transported to Washington via an Army courier plane, an old biplane. It's quite a tale that he tells. I've heard him tell it personally a number of times.

So his knowledge and breadth of knowledge of Boulder Canyon was extensive, and he's written a number of documents, books. The bound version of the documents, called the Hoover Documents, is principally Northcutt Ely's effort to document that era of history and why various things happened relative to Boulder Canyon Project, the All-American Canal, the treaty with Mexico, and all these contracts, and those things that are focused around all the Hoover legislation.

". . . I went to this meeting absolutely terrified, because I had heard all these horror stories. This very small-statured gentleman walked up to me, white hair, thinning, impeccable dark blue suit on . . ."

But like I say, I had a chance to meet Mr. Ely, and I know that I went to this meeting absolutely terrified, because I had heard all these horror stories. This very small-statured gentleman walked up to me, white hair, thinning, impeccable dark blue suit on, and he walked very slowly. Of course, he was into his early seventies when I first met him. He came up to me during a break, and he says, "Mr. Boyce, I understand you have the–

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Storey: . . . to develop the new regulations for the sale of Hoover power, for pricing and that."

I said, "Well, yes, sir, I do," not knowing who I was talking to, but assuming from what I had heard that this was probably Mr. Ely. He then introduced himself to me, and it was kind of like the student talking to the master, because that man literally had been involved in the writing of the original 1940 regulations for the sale of Hoover power, and now here I was, this young whippersnapper upstart, coming forward to take over that role.

Well, that was the beginning of a very *long* and *dear* friendship between Mike and myself, just a consummate gentleman, and always a delight to visit with him socially because he would tell fabulous stories of those early years of the beginning of Hoover and the Hoover contracts. I was hearing a different aspect of Boulder City, even though he never lived there, because he was going to law school in that period of time when I was growing up and when his dad was there in Boulder City. So he never lived in Boulder City. But the fact that I knew *of* his dad and that my dad knew his dad, he was very interested, and we formed quite a bond and quite a friendship over the years.

He was a very formidable opponent across the table in negotiating, whether it be a contract or an agreement or developing a regulation, but he was also a very even-handed individual to deal with, very polite, as I say, a consummate gentleman, very thoughtful of people. If he knew somebody had gotten a promotion or had a death in the family, it was not at all uncommon for that person to receive some kind of congratulatory or condolences from Mr. Ely personally. He's been a guest in my home. I've been a guest in his home. We've seen each other socially, and just that type of an individual, a real pleasure to know that type of a human being. I met his wife. She, I believe, is still alive, although she's in a care center.

But he just is one of those people–it's just like dealing with a part of history when you deal with Mike Ely and that, and I think he's what will stand in the niches of Interior history as being one of those individuals because of his work, both as an attorney for Interior and then, of course, as the historian of sorts in documenting the Boulder Canyon Project.

"It was always one of those situations where, when you went to a meeting, that you'd *better* be sure you had done your homework, and you'd *better* know more about the subject matter than Mr. Ely. And sure as you thought you did, he always knew a little bit more. . . ."

It was always one of those situations where, when you went to a meeting, that you'd *better* be sure you had done your homework, and you'd *better* know more about the subject matter than Mr. Ely. And sure as you thought you did, he always knew a little bit more. So like I say, it was with a great deal of trepidation that you went to a meeting, but it was always a great deal of fun, because not only would he support and help achieving the ultimate goal of whatever it is that you were working on, but he would also teach, and he was not at all taken aback if, in your research, you pulled out a nuance that he wasn't either remembering or clear on.

Many a time, it seemed like every day, I'd spend at least ~~one,~~ one or more conversations on the telephone discussing a *point* of regulation or law or principle that ought to be or had ought not to be incorporated in what we were developing. So I remember Mr. Ely very fondly because of that relationship. I learned because I was forced to learn. I *had* to learn. To be able to go toe to toe with Mr. Ely, you *had* to learn your history. You had to learn your regulations and your law. So it was a good learning experience for an up-and-coming career employee.

"I remember they always used to have a greased pole, and . . . if you got to the top of the greased pole, whoever did that, I think they got a ham and twenty-five dollars or something like that. . . . ."

Let's see, we talked about the early fire department and the garage. We talked about the rangers, talked about Damboree a little bit. I don't know that I need to get into that unless you particularly want me to. I can just reflect upon that as a youngster growing up in Boulder City. I mean, it was something for the kids to do.

Fourth of July Parade

And of course, Boulder City, for the Fourth of July there was always a parade, and I participated in that as a youngster, whether it was riding my bicycle with crepe-paper streamers in the wheels, or later, as a high school student in the marching band. Then later on, as a parent, I helped with the band in Boulder City, or Scouts. We helped in selling various products, or we'd have a booth. So those were good days in Boulder City.

Storey: So Damboree was over the Fourth?

Boyce: It was the Fourth of July. It was, and still is, quite frankly, one of the very few *real* community-type Fourth of July celebrations. It's grown tremendously. It's quite an effort, a big parade now. The Damboree is still there. They still have the park area where they have the various booths, where there's games and food. And, of course, Fourth of July is always the premier event for all the local politicians to come and politick. I mean, where else better to go and see your constituency all in one place? People from Las Vegas and Henderson and Searchlight, they all come into town and participate in it. So it's quite an annual event.

It's generally the time that the high school classes hold their reunions, about that time, because everybody comes back for the Fourth of July festivities and that. So it's quite an annual mainstay of Boulder City today even.

Boulder City Incorporated into the Clark County School District

Watching the school system evolve, of course, going into the Clark County School System, which is one of the nation's largest school districts, it's been good and bad, from a resident, from a parent, from a former student. I've watched what I would have acclaimed to be an *absolutely* great school producing a lot of ultimate Rhodes scholar students, military academy students, coming out of that school

system, I've watched it go downhill as it deteriorated. I guess just with time and age that happens.

Ford Foundation Grant for the Boulder City High School in the Early 1960s

The Ford Foundation had picked this school to be a site of a revolutionary prototype auditorium that could be modularized into classrooms, and so they built that, and it was very state of the art. This occurred in 1962-'63 time frame, just right after I graduated, and I remember the high school shop teacher, Mr. Miller, Lyle Miller, became the auditorium overseer, and when I went home from college over the Christmas vacation, he took me over there with great pride to show me the state of the art, because I had spent my high school–actually, late grade school, all of my junior high and high school, basically, as a student audiovisual person. I was *the* person that did the public address system, did the lighting for stage productions or whatever type events there at the high school. So when I went back at college vacations, Mr. Miller wanted to be sure that I got to see this new state of the art, and it was, at that time, very state of the art, especially for high school auditorium facilities. The building's still there. It's been renovated once or twice, and my brother and I actually have probably renovated the lighting panel in there once or twice ourselves as former students and as parents involved with the Boosters Club and things like that. It's been quite an event to watch Boulder City grow from dirt–literally everywhere you went was dirt.

I remember, just as an aside, not only my dad putting the light poles and that, I remember when the government came in, and they thought it would be well to plant–they planted a lot of elm trees in Boulder City. All the parks had these huge elm trees, and then the evergreen trees that they planted, especially up in the park area. There's a number of parks in Boulder City, of course, as you look south from the regional office, of course, it's up on the northernmost hill there and Boulder City being laid out like basically the spokes of a wheel, but with the hub of the wheel being the regional office, and as you watch the spokes radiate out, to the west would be Nevada Highway. To the east would be Utah. And then California was the street that was the north-south spoke of the wheel, and, of course, California was the *widest* street in town.

Government Park and Art in the Park

Immediately south of the regional office there was what was called Government Park, a great big huge park, and it was kind of the curved parkway that formed the foreground as you looked south to north at the regional office. There's this big curved park, and then that's, of course, where they hold the Art in the Park now, which is another Boulder City annual event. That was a way that they used to–the residents–to help pay for facilities, equipment, etcetera, for the hospital, which after the Six Company Hospital and Boulder City was incorporated, then they formed a hospital association, and it was made up of organizations, civic organizations, in Boulder City, the Beta Sigma Phi Sorority, the American Legion, the Elks Lodge, etcetera, all had representatives, and still do, within that hospital association, and it's basically owned by the citizens of Boulder City. So the Art in the Park [event] started

much like the old dime-a-dip dinner. It was a way to help fund needed equipment and bought the ambulance for Boulder City. Of course, this was before Boulder City really had its own fire department and had its own ambulance service.

Dad Volunteered for the Ambulance Service

I remember, again, as I started into my high school years, junior high, high school years, that, again, like the fire department in early days, the ambulance service was provided by volunteers, and I remember my dad, for example, was one of the ambulance drivers, and, of course, a number of those people that were involved in that, they had to take first aid, and I remember my dad becoming a first-aid instructor, and, of course, because he was an instructor, I always used to be the victim. And so as he taught various classes, then I got to be the one that got splinted up or bandaged up or CPR or the old back-pressure-arm-lift resuscitation process. I was always the guinea pig for that. So I remember that very well.

Red Cross, Swimming Lessons, Lifeguarding

I remember the Red Cross coming in and being the basis for teaching not only the Red Cross courses there in Boulder City and training instructors, which my dad became one of them, but also teaching the kids, the youth of Boulder City, how to swim. And, of course, to learn to swim, you had to go to Lake Mead, and so we had these carpools of people. I remember a lady that, at least in my mind, in my recollection–and I'm sure that she in conjunction with others, but they had the Red Cross Youth Swim Program, and a lady by the name of Alice Berry, still alive today and I believe living in Overton, became the person that was the coordinator, she and, I believe, another lady, and she taught–they taught the youngsters just learning to get used to water all the way up through the beginning and intermediate and advanced swimmers and lifeguard program, and I took all the courses and became a water safety instructor under Alice Berry's tutelage in that. And so, there again, a person that lived down the street from me on 6th Street, three or four houses, her husband ultimately became a building contractor and built their home there. She had sons that were ahead of me and behind me in high school and that. So we all learned to swim at the lake. And that's–and then ultimately, after I got my certification as a water safety instructor [WSI], that's why I went down and became a Park Service life guard, because you had to have your WSI in order to be there. And of course, as a youngster, you always looked up to the lifeguard, and they were all very impressive people. I always thought that would be a fun job. Well, it was a fun job, and you got very sunburned and got a good tan doing that, but it was just one of those things that, as a student or as a youngster growing up becoming a student, it was just kind of the rite of passage there, working for the Park Service as a lifeguard, and then you moved on to other things in Boulder City.

Storey: Well, I would like to keep going. However, we've been talking for over two hours.

Boyce: Okay. And here I thought I had nothing to say.

Storey: Let me ask you if you're willing for researchers to use the information on these tapes and the resulting transcripts.

Boyce: Sure. Sure. I have no problem, and here again, this is my recollection. Childhood memories and fact may be discolored a little bit only by the impressions that I recall as a youngster and that, but a lot of what I've said is also backed with subsequent, later on in life, going back and reflecting back and researching some of these things. A lot of experiences that we can discuss further, again as a youngster going down to the dam with my dad when he would take friends and associates on tours of Hoover Dam and that, and we can talk about that in a later session.

Storey: Good. Well, I appreciate it.

Boyce: I think we've covered my recollection of Boulder City and growing up in Boulder City and high school, the school system and that, and probably ought to move on into Hoover a little more, because that's probably where my experience is.

Storey: Well, I do have a few questions to ask.

Boyce: Okay.

Storey: Good. Thank you.

END SIDE 2, TAPE 2. AUGUST 12, 1997.
BEGIN TAPE 1, SIDE 1. AUGUST 13, 1997.

Storey: This is Brit Allan Storey, Senior historian of the Bureau of Reclamation, interviewing Harvey W. Boyce on August the 13th, 1997, in the Denver offices of the Bureau of Reclamation, at about nine o'clock in the morning. This is tape one.

I was wondering, first of all, if you had any thoughts come to you that you wanted to talk about since our interview yesterday.

Dad Was an Electrician Apprentice at Reclamation

Boyce: One thought, I thought we ought to– or at least, certainly, ought to highlight, and that is in reference to my father. My recollection is that I recall his taking correspondence courses and that, but he, at least my understanding, was the first electrician apprentice for Reclamation, and certainly completed the course and received his journeyman certificate. I recall that quite a ceremony took place at Hoover Dam with officials whom I don't know, I assume the regional director and possibly people out of the Department [of the Interior]. So I certainly would recommend that he be interviewed. He can shed more light on that. I've heard two versions: (a), that he was the first apprentice in the nation to accomplish this, and [(b)] then also the other aspect of certainly within Reclamation. So that ought to be explored.

I think also there is a wealth of knowledge of early Hoover stories that can be related–more personal-interest-type stories of things that occurred during late

construction, early operational period of Hoover Dam, when the bugs were being worked out, various individuals that had key roles in the early development, in the operation of Hoover. So that came to mind last night, that I think that ought to be explored.

Storey: Your dad's name?

Three Generations of His Family Have Worked at Hoover

Boyce: Dad's name is Harvey W. Boyce, and his middle name is Wood, W-O-O-D, as opposed to mine, which is Walter. So while we have the same first and last name, we have different middle names. So I'm not a true junior. I think it's interesting to note that–I don't know that I'm the only, I think there may be others–that at least three generations of my family have participated in work at Hoover. Ideally, I'd like to get my son employed there at some time. Then we'd have four generations, and I'm sure that would be a record or a first. But certainly my step-grandfather, Kelly Sweet, my dad, and myself having all worked at Hoover Dam at some point in our life.[5]

Storey: I believe you mentioned yesterday that your dad used to take you on tours down at Hoover.

Boyce: Yes. As a youngster, and as friends and other people would come to Las Vegas for a visit, of course, Hoover's always been a high attraction for visitation, and so my dad would be requested to conduct what I guess would constitute a VIP tour, special tour, that was outside of the realm of the normal conducted tours that Reclamation has offered for years, and these tours would be behind the scenes, much like the hard-hat tour that's now being offered at Hoover Dam, walking tours that would go into the bowels of the dam and into the penstock adits and walk along the penstock pipes and down into the lower floors.

Story of an Electrocution at Hoover

I recall vividly his pointing out on the second floor over the reactor bus, on the ceiling there there's definitely a very noticeable black scorch mark, I guess would be the best term, and he tells the story that one of the workers, early on, apparently prior to recognition or the emphasis being put on protection of inadvertent contact with electrical equipment, an employee apparently had gotten somehow off balance or inadvertently had come in contact with a 13,000-volt bus bar and had been electrocuted and literally *burned* bad enough that it permanently has marred and permeated into the concrete ceiling there. It certainly made a lasting impression on me about the impact of electric power and its dangers.

Visits included actually going inside of the draft tubes when they might be open for inspection and that, and the absolute *enormity* of a bolt or a nut associated with connecting a butterfly valve. From a youngster's perspective it's just *huge*. As

5. Now four generations since Harvey Walter Boyce's son, R. Scott Boyce, is working in the guide service at Hoover Dam.

you get older, huge becomes smaller, but nevertheless, you know, these are large pieces of equipment and large tools involved. It takes a great deal of planning and that to take apart a penstock, to open a butterfly valve, to take apart a generator, to pull a water wheel out.

". . . my dad, was considered to be the resident expert in the Woodward governor system that governed the opening and closing of the wicket gates . . ."

I recall that he, my dad, was considered to be the resident expert in the Woodward governor system that governed the opening and closing of the wicket gates, which added or reduced water to the water wheel, thereby providing more or less speed to the generator to regulate its electrical output to the system load.

Bodine Motors in the Governor Systems

I remember the governor in that system, the fly balls and the Bodine motors. I don't think I'll ever forget the reference to Bodine motors, a little electrical motor that's basically driven and is used as a part of the interface between the mechanical change of the load or the sensing of the increase or decrease in the electrical demand converted to a mechanical, then to a hydraulic reaction that literally moves the pistons that connect to the arms of the wicket gates, and literally opening and closing these wicket gates, which are complex pieces of machinery and regulate that water.

Recalls Modernization of the Control Room

I recall when, here of late, as Hoover's control rooms are being modernized and going from the more mechanical and electrical control systems to computerized, the control boards that controlled equipment within the powerhouse: water pumps, eductors, oil pumps, air compressors, the two house generator units that provide power for the powerhouse itself, all of this controlled on a separate control board in the control room, which my dad spent a great deal of time not only wiring, repairing, literally inside that board on his back.

"I happened to be there one day as that board was literally taken out in pieces in wheelbarrows. It's just like a part of history walked out the door in the trash can. . . . but in looking at the workmanship in early Hoover, the beautifully tied wiring looms that the electricians took great pride in square corners, well-tagged ends on wiring so that it was easy to trace as compared to the new equipment now being installed at Hoover that looks like a bird's nest. It's just an absolute total departure"

I happened to be there one day as that board was literally taken out in pieces in wheelbarrows. It's just like a part of history walked out the door in the trash can. Luckily, we were able to save, thanks to an assistant project manager literally stopping a wheelbarrow and taking a hack saw and cutting about an eighteen-inch, twenty-four-inch piece of the wiring harness that came from inside that board. And I guess that's the thing that impressed me more, not so much that particular thing, but in looking at the workmanship in early Hoover, the beautifully tied wiring looms that

the electricians took great pride in square corners, well-tagged ends on wiring so that it was easy to trace as compared to the new equipment now being installed at Hoover that looks like a bird's nest. It's just an absolute total departure, almost a dichotomy of professionalism in the industry.

Time is money today. Pride is not the issue in doing a job. It's just get the wire from Point A to Point B, not *how* does it look when it got there, after it's there. It's just, get it there. And so there's really been a noticeable [change], from my perspective and others', in the standard of workmanship, the work ethic, and that's not to be meant in a derogatory manner, because time is money and we're paying people a lot more money for an hour's worth of labor, and we expect more to be accomplished for that dollar spent, but it certainly is a revelation of where the industry and the work ethic has gone in seeing old journeyman-type work compared to what is now classified as journeyman-type work, and it's a little disheartening to those who have spanned that spectrum of time. I guess if you come in today and that's the way you're taught, then that's common, but when you've seen it the other way, it's disconcerting.

So, those are impressions, I guess, that have struck my senses as I've watched Hoover evolve over, now, nearly thirty years, certainly longer than thirty years, thirty years of my career, nearly thirty years of my career, and my contact with Hoover as a youngster even before I began a Federal career.

Storey: Yesterday, you mentioned building up points so you could move to a new house. Tell me what you know about that system of housing and so on and how you were entitled to what and all that kind of stuff.

Housing in the Government Camp

Boyce: Okay. I don't know that I can specifically address what activities earned you points or what points were awarded for. My assumption is–and, here again, my suggestion is talk to my dad and to others who lived there, but because it was a government construction camp and because most of the housing initially was, literally because it was a remote area, not only was Reclamation employees but also the two operating agents that the city of Los Angeles Department of Water and Power and the Southern California Edison Company employees that moved to Boulder City, it was considered to be a remote and not really a favorable or a nice place to go to live, because it was very barren and stark and hot and just not a pleasant duty station per se.

And so the employees were assigned housing based on things such as longevity, number of members in the family, sexes of children. Position within the organization, I'm sure, obviously had an impact because those who were in senior management had very nice homes that were brick, and they were up in the nicer or the upper–closer to the flag pole, shall we say. Their homes were up closer to the regional office, as opposed to the "worker bees" who were more or less the blue-color workers, and they were out in the little wood-frame houses and that, farther away from the flag pole.

So I'm sure that certainly position in the organization, whether or not you were a supervisor, whether or not you were just a journeyman, whether or not you were just a laborer, all had some influences on that, but the specifics, I think, can be better obtained from others. Certainly longevity with the organization would have been a factor. But I remember–and I guess this was quite common throughout industry, not just the Federal Government–that point systems were very much used, the better-parking-place-type concept, did you get to park closer to the front door as opposed to parking out in the outlying lots. But I do remember people discussing in casual conversation around the dinner table whether or not you had sufficient points to bid on a house that was becoming vacant, or who *might* have the points to outbid *you*, those type of conversations.

Storey: So there literally was a point system.

Boyce: There was literally a point system, and you literally bid on a vacancy to, shall we say, move up into a larger home or a nicer constructed home or better location within the community.

Storey: Interesting. You talked about the baseball diamond and its construction yesterday, on Saturdays, I think you said.

Boyce: My recollection is that this was done basically off-duty hours by the workers, and Saturday was–you know, generally the work week was Monday through Friday. Granted, there was generally a–at that time there was a three-shift, around-the-clock operation of Hoover as it was initially completed and gained its operational stability. As time moved on, the number of employees involved in the three shifts diminished. Obviously the day shift had the larger number, the graveyard shift being midnight to six or seven o'clock in the morning, having the more minimum number of employees, but these were also times when certain equipment could be taken out of service for routine maintenance or for overhaul easily, and so that was done that way.

Of course, Hoover's still operated on a three-shift basis operationally, but now instead of having a full–well, not a full, but at least an electrical gang there, even though it was a smaller number of electricians and helpers, in the swing and graveyard shifts, Hoover's not operated that way today. As a matter of fact, Hoover's operated with a very minimum of people, maybe four or five or six people, as opposed to maybe twenty or twenty-five people or thirty people. I don't really have a sense for how big those crews were at that time, because I just knew that my dad was working graveyard and that I was to be quiet around the house during the day when he slept.

So I don't know how many people went to work at night, but I know that there's a minimal number of people now involved in the operation. But Saturday, of course, Saturday and Sunday was generally–everybody was off, with the exception of who was assigned to work those shifts. My recollection is the general maintenance of the–employees assigned to maintenance worked pretty much a Monday-through-Friday work week. So that's when they took the time.

And also, equipment was available: boom trucks and things like that, or trailers that were used normally day-to-day to do the routine maintenance and repair of the community and the project facilities and equipment. Because people weren't working on Saturday, those trucks would be available, and because it was a government operation and it was all basically government facilities that would be involved, I guess there wasn't a problem with utilizing Federal equipment to do it at that time. Certainly the use of the employees' time was voluntary, and it was not compensated for, but the equipment was available and was utilized to dig those post holes, to set those posts, to bring the various pieces and parts, and to string the conductor between the light fixtures and that. So that's why I recall it being on a Saturday when they'd do this.

Boulder City Act

Storey: You mentioned yesterday the Boulder City Act in 1958.

Boyce: Right. That act basically was the congressional authority that allowed Boulder City to incorporate and become a self-sustaining municipality. It was drafted with a great deal of input not only from Federal officials and congressional representatives, of course, in the state of Nevada, but also certain community members. Bob Broadbent comes to mind. He was the local pharmacist, became, I guess, in effect, the first manager or mayor, or whatever term it was called. He subsequently went on to be ~~an acting~~ commissioner of Reclamation, as it turned out. But there were a number of people.

Another gentleman that worked for Reclamation by the name of Denzel Pease [phonetic], Denny Pease, a very civic-minded individual, was greatly involved in that development process, and others that–their names even escape me at the moment, but they crafted the city charter and basically the logistics of what facilities remain under government control and what facilities were to become city property and all of the logistical work that's involved in drafting that type of legislation. There's a lot of nuts and bolts and title transfer and that type of stuff.

It was an interesting process, and it was a process that took place just as I was leaving high school–'58 to '61 time frame, when all that really took place. And so, while I didn't have any direct interest, probably, at that time, as I recall, I was probably just *casually* aware of it going on, certainly as an early Federal employee in the 1970s and the Boulder City Act and this relationship to Hoover and Hoover Power and Hoover water supplies to Boulder City, I became more intimately involved with that act.

Storey: So back in '58, '59, '60 you didn't see any effects of this particularly?

Effects on the School System of Moving into the Clark County School District

Boyce: Certainly impacts that I felt directly impacted me personally, nah, I don't really think so. The school system moving out from under Federal jurisdiction and its own school district, moving over into the Clark County School District, becoming part of the

county system, yes, in the schools we noticed it. Quite frankly, availability of supplies and equipment where the government was–and Six Companies during construction days were very prone or certainly very amenable to providing the number of books and supplies and equipment necessary for the school. When it became the larger school district or became part of the larger school district, you basically had to take what was available, and you might not get everything that you asked for in the year that you asked for it. I recall comments by teachers, of saying, "Well, our number of books this year are going to be limited," or, "We're not going to get new books this year. We're going to reuse books," for more years than typically they had done or had to do under the school's being its own school district.

Changes in Law Enforcement after Boulder City Act Implementation

Yes, the Federal marshals went away. We didn't have the Federal law enforcement. Of course, the fire, policing, hospital, all of that became more community involved, more governed by municipality as opposed to being so much of the government involvement in that, as we discussed yesterday. So I guess in that sense I noticed it, but it's not one of those events that was a landmark event, in my mind. It was just, you know, kind of business as usual and it's a new day. So the local law enforcement isn't wearing a Federal marshal's badge; they're wearing a Boulder City Police Department badge-type thing.

Storey: What about your parents' home?

Boyce: Well, as I mentioned yesterday, I know that my dad lived in a government home, of course, before he went in the service. As I *recall*, and as a very dim memory, that coming back to Boulder City after getting out of the service, we lived in a number of places. The B Street Apartments come to mind. There was another, a nicer set of apartments called the Cherry Lynn Apartments, which were a nicer apartment complex. I don't know that we ever lived there, but I do know that we lived in the B Street Apartments. We lived in the demonables. We lived in the Vancouver House and then other government homes.

Dad Left Reclamation to Work for City of Los Angeles Department of Water and Power

And then–I don't recall the year right off. My dad can better reflect on that, but there was, I guess, a downsizing, if you will, of government forces, and maybe that was as a result of construction being downsized or terminated. I don't know whether my dad's job was at risk in that downsizing or not. I don't recall. But I do remember him being concerned about the possibility that his job might be at risk and so, as circumstances prevailed at that time, he took an examination with the City of Los Angeles Department of Water and Power and was hired on by them as the operating agent for Reclamation at Hoover, and so basically just changed employers, still working at Hoover, but no longer working for the Federal government, now working for–

END SIDE 1, TAPE 1. AUGUST 13, 1997.

BEGIN SIDE 2, TAPE 1. AUGUST 13, 1997.

Dad Became Senior Electrical Mechanic for the Crew at Hoover

Boyce: –the city of Los Angeles and working there with the electrical maintenance crew as a journeyman at Hoover. He ultimately succeeded in, maybe just by sheer perseverance, becoming the senior electrical mechanic for that electrical crew there, and so was directly responsible for overseeing a lot of the overhaul of transformers, governor equipment, the generators themselves.

I remember a lot of times that he ~~would–Larry~~ would be down there directly involved in coordinating with Reclamation's staff there to get the crane operators and the hydraulics and every other thing that's associated *with* the generator connected and unconnected, to tear it down or to put it back together again, whether it be a generator, or it could be one of the big step-up transformers. I recall him telling me stories, and literally having watched him climb wood poles with the old spikes and belts, and, of course, that's what I remember when they put the ball field in, there were all these electricians with climbing spikes and safety belts, all tied off at the top of these telephone poles while they put the cross arms and the light fixtures and the wiring up.

I remember Dad telling me of an occasion where he had a bad spot in the pole and literally, as they say, burned the pole, which means the spikes ceased to hold him up, and down the pole he came very quickly. I recall a good friend's father was the foreman, I believe, at that time, of the electrical crew that worked *in* Boulder City and took care of the power facilities, distribution facilities. This fellow was electrocuted one night during a very bad rainstorm. I remember it was probably one of those things that impressed me, because he was a very close friend's father, and it was a man that I knew, and, you know, the feeling–that was very traumatic to think that here's somebody that you admired, respected, you knew went to work every day, just like *my* dad went to work every day, and here one night he went out to make sure that electrical service was available to the community, and was killed in the process. And it kind of brings you back to a sense of reality: You know, this could happen to your dad.

Again, somebody got electrocuted down on the second floor. Well, that was probably somebody's father, and so it kind of gives you a sense of mortality in this business, that it's not all get up, go to work, come home, go play. It's very risky business. I recall that being a very traumatic point, certainly in my friend's life, but it had a very lasting impact on me, also, at that time.

Storey: What about your dad's home when the Boulder City Act was passed?

Boyce: Well, let's see. In 1958, my recollection was we were living over in then a Los Angeles Department of Water and Power home on the corner of Cherry Street and Arizona, 1620 Arizona. It was a little frame house. There was four of them on the same plot of land, two bedrooms, one bath, a living room, dining room, small kitchen,

and a laundry room. In that laundry room, I remember, is where my dad put a desk, and that's where I did all my homework, was out there in that laundry room.

Eventually Federal and Operator Companies' Homes Were Sold, Generally with First Preference to the Current Resident

So the fact that Boulder City became a municipality, that really had no impact on his home, or *our* home, at that time, but as 1987 approached and the original operating agreements between Reclamation and the [Los Angeles] Department of Water and Power and the Southern California Edison Company came up for renewal, and Reclamation's pronouncement that they were not going to be renewed, then–and I had since moved away from Boulder City, got into the service at that time, but I remember that all of those homes, not only the government homes, but also the Edison and the L-A homes, were being put up for sale.

I believe, as I recall, it certainly was Reclamation homes, that those people that were *resident* in that home had the first *option* to buy that home. Then–and here again I'm not just real clear–but I think there was sort of a point system, or a pecking order, that allowed those homes that were not being auctioned by the current resident to be bid on for purchase, and I believe it worked the same way with the Edison homes and the L-A homes.

So from the aspect of the town being incorporated, I don't see that there was a direct impact, per se, on Federal and the operating agents' property at that time, but as the need for the Federal presence to be in Boulder City, now that it had become a municipality, as that Federal presence diminished, of course, then so did the need for housing being provided. So, those people were jockeying, I guess, to acquire those homes if they wanted them.

Working Earl Brothers' Stands out at Hoover

Storey: You mentioned working out at Mr Brothers' stand out at Hoover.

Boyce: At Hoover at the business, yes.

Storey: Tell me more about that. Which side did you work on?

Boyce: Actually, I worked both sides. I used to feel very cocky about the fact that I could work both sides. During the weekdays, of course, I was going to school normally, and so Mr. Brothers, and subsequently Mr. Manus, had some gentlemen, and I think they were probably retired veterans that operated or manned those stands during the work day, but certainly, during the summers and on the weekends, the high school students would get an opportunity to do that. It was just a very small stand, and it seemed like you had things hanging on the walls and off of the ceiling and under the counters, merchandise to sell, and we sold everything.

The Stands Sold Many Items, but No Food and No Water

Of course, if you sold film, then you were always being prevailed upon by the tourists to help them load their cameras and where can they get their film processed, and so we sold the mailers that you could put your film in and send it off to be processed and that. And all kinds of typical tourist trinkets, native rock bracelets and necklaces, but no food and no water. We could have made millions of dollars if we'd had a good cold drink there at times.

Storey: Why no food and no water?

Boyce: I don't know. I don't know whether it was just that there wasn't just really the facilities there to properly prepare food and provide for it. That, of course, was *changed* as the Bureau of Reclamation and the state of Nevada entered into an agreement to provide, I guess under the Randolph-Shepherd Act, the blind vendor facilities. So they, of course, have taken over not only the providing of food and snacks and drinks and that, but also of the various tourist-type memorabilia that are there, brochures, whatnot. That's the only thing that I can conclude as to why. The stands were just so small, and there really wasn't, and, quite frankly, we had no rest room facilities. If we needed to use the rest room, we had to close up the stand and go down to the dam and use the facilities there at the Visitors Center. So drinking water we had to bring down in a thermos jug. It just was extremely limited, the amount of resources that were available there to us.

Storey: How would you characterize the visitors you saw?

Boyce: Well, certainly, visitation at Hoover over the years has increased. That's amply demonstrated by the statistics that the visitors center people have maintained for years. In my observation, of course, during the winter months, visitation was light. During the holiday periods, you could expect an influx of visitation. In summer, of course, it was more and more. It seemed to me that the most notable high points would be around the new year, when people would be [in] transit to the Rose Bowl. We always would find people stopping at our stands there [who were] ~~that~~ either going to or coming from the Rose Bowl game and the Rose Parade. So you could guarantee that. And, of course, as people were able to take time off and take family vacations and that, you would get a lot of that.

Of course, there's always the typical tourist questions and the typical Federal– well, not Federal. I shouldn't say Federal, but the typical employee response to questions like, "Why is there a white line around the lake, the edges of the lake?" and, of course, the response to that is, "Because we have to paint it every year," notwithstanding the fact that it was the high-water mark. I mean, that was not a germane comment. And, "Why is the water blue on the upstream side and green on the down stream side?" Of course, the obvious answer is, "Because that's what happens to water when you take electricity out of it." So we used to have a lot of great fun with the tourists and that. But you met a lot of nice people and got to have a lot of nice conversations with Americana as it went by your little stand.

Storey: Do you remember the period when you worked there?

Boyce: I did that probably–it was about the time I turned sixteen, so it would be about 1958 through, I guess, about 1961. Yes, because I graduated in 1961, I went to work as a lifeguard and then on to other things, so my tenure terminated about the time I graduated.

Commuting down to the Stands to Work

Storey: How did you get down there to go to work?

Boyce: We got down there–that was an interesting vehicle. Mr. Brothers and then Mr. Manus had an old panel sedan, I guess you would call it, and I don't even remember whether it was a Plymouth or a Chevrolet, I don't remember, but it was a panel wagon.

Storey: A panel wagon.

Boyce: It's like a station wagon, but no glass on the side windows. It was just a panel there, and had a back tailgate affair and two doors, and it had a hydromatic transmission in it, and we used to take great delight–of course, the students that worked down there. The older gentlemen that worked down there–well, I shouldn't exclude them, because, as I recall, it was even one of those. It used to be a great deal of fun and somewhat of a challenge, how fast could we get from the dam, from our point of when we closed up at night until we were back at the office in Boulder City.

Of course, the roads leading to the dam at that time from Boulder City was a two-lane road–it still is–but it was a two-lane road that was constructed entirely different than they way it is today. Where today it has more of a flat pitch to it, the road was very much more pitched into the turns and out of the turns, and we got to know every nook and cranny of that road. We knew where you could see around the traffic, and you knew just about exactly how much time it would take to get around one vehicle in the various turns and switchbacks. So there used to be a great deal of delight and strong competition amongst the students as to who held the record for getting up to the office after work, somewhere in the magnitude of eight or nine minutes to do about a seven-mile, uphill, switch-backed road.

Storey: Do you remember what they paid?

Boyce: Minimum wage. Whatever the minimum wage there, and I think it was about a dollar and a quarter or a dollar fifteen at that time, when I first started down there, and I know that we all were excited every time that the Federal minimum wage went up, because it meant we got a pay raise. I believe that's all I really ever received from them, was just minimum wage, but certainly, from a student's perspective, it was good for spending money and being able to buy things that *we* wanted or to go out on a date as a teenager.

Storey: You were born in Long Beach.

Boyce: California, right.

Storey: Were your parents married when your dad went into the Navy and moved back there? How did that work?

Boyce: Actually, my Dad and Mother got married just, well, February 26, 1942~~='41. Yes, '41. I believe that's right~~.

Storey: In Boulder City?

Boyce: In Las Vegas, I believe, is where they were married, and they got married just prior to my–I mean, literally within a week or two of my dad going into the Navy. And I believe that would have been '41, because I–no, sir. It was '42, because I was born in November of '42, nine months later. So it was just prior to my dad going overseas.

Storey: But at that time he was working for Reclamation already?

Boyce: My sense is that he was, but I'm not positive about it. I'm just not sure that he actually was.

In kind of a side note, and this is just one of those things that, gee, golly, kind of weird. A very close friend of my parents, a fellow that my dad had gone to school with by the name of Ray Wiggins [phonetic], was, at that time, working at the same visitors stand at the time that Pearl Harbor was bombed, and he had an older brother who was *at* Pearl Harbor, as it turned out. He had told me the story years ago that he recalls hearing the news, via radio, that Pearl Harbor had been bombed, and that he had *immediately* closed up the little visitors stand down at the dam and had *immediately* gone to Boulder City to be with his parents because of his brother's involvement. The irony of that story, and the only reason I point that out, is because my brother happened to be also working at one of the stands down there in 1967, July 29th, when the *Forrestal* aircraft carrier blew up in the Gulf of Tonkin and I happened to be on board, and my brother literally heard it on the radio, closed up the stand, and went home to be with my wife at that time, who was extremely pregnant, due any day, to be with her during that until she was able to receive word as to *my* safety. So, it's one of those kind of weird circumstantial stories that occurs, that two people that many years apart, 1941 to 1967, having these similar circumstances.

As I understand it, my mother and her sister and brother-in-law had moved to Long Beach to be close to where my dad was stationed. He was, at that time, going to boot camp at, I believe it was at San Diego. As I said, my uncle worked for Lockheed, and, as I recall, he was involved in the construction of the Black Widow fighter aircraft. My mother worked in one of the tools cribs, dispensing tools to the worker, kind of a controlled environment where they handed out drills and saws and whatever else, and so she worked there. My aunt literally raised myself and my cousin. They all three lived together, of course, with my cousin and myself, and pooled their resources because of the restrictions on commodities and that during the war effort. So, I was born. At that time, my mother was pregnant, of course, while she was working, and took off time and went back to work, but I was born at the Seaside Hospital there in Long Beach. It's no longer there, I guess. Then I used to go with my mother on the bus or the train to visit my dad, when she'd go down to the

base to visit with him or to go to the dispensary or whatever. I guess as a child I had my fair share of illnesses, so I got to see a lot of Navy doctors in early life.

Storey: I'm not quite clear whether you went to high school in Boulder City or in Las Vegas.

Boyce: My dad went to high school in Las Vegas because there *was* no high school in Boulder City at the time, and I think he was one of the last classes to do that before high school facilities were built in Boulder City. But I went through all of my primary and junior high and senior high school *in* Boulder City.

Storey: So the high school would have been built pre-World War II.

Boyce: Not *the* high school that's there today wouldn't have been pre-World War II, because we were back living in Boulder City after World War II when the present high school was built.

Storey: But *a* high school.

Boyce: But there was *a* high school of sorts. Now, where that was, I don't know. I don't know whether it was–here again, maybe one of the old Army buildings that had been converted or whether or not the existing structures that I went to school in, which is now the City Rec Department and the City Hall, whether or not they actually held classes there, but I certainly remember going to school through my sixth grade in those. I'm not so certain that maybe even the high school students didn't go there ahead of me, but I know that up through my–I said my dad's graduation, they literally went to Las Vegas, because they just did not . . . and it may be because they only had the one building available and they hadn't built the second building by that time. I just don't recall what the time period and what facilities were being utilized by those students between my *dad's* time and *my* time being there.

Storey: What did you decide to study while you were in high school?

High School in Boulder City

Boyce: Well, high school, of course, was generally college preparation and do the general things that most high school students do. Especially in a small town, you knew everybody in your class, certainly, and you knew most, if not all, the people in the classes immediately adjacent to your class. Boulder City, probably that time frame, 4,000 to 6,000 population, as opposed to whatever it is today, which I think is about 12,000. Boulder City school is still a small population, maybe 720 students. My graduating class was like 58. The graduating classes now are well over 100.

So, as a student, you had an opportunity to participate in everything, and it was not at all uncommon to see students that were not only members of athletic teams, but also members of the band or chorus or in the thespian group. So you had a lot of opportunity to participate in a lot of those organizations or extracurricular activities, where at the bigger schools today you just don't have that general opportunity. There's just too many people that want to participate in certain things,

and they pick the cream of the crop. Well, at that time you got to participate in all of them *if* you wanted to.

I remember, as I said earlier, I participated in the audio-visual there with the school, and I remember they held the state girls' FHA convention in Boulder City, and they prevailed upon me to make sure that they had audio-visual equipment, and I was the envy of the school, because here I was, the only male participating with all these young ladies from all over the state, and I got to do that for three or four days. So I was quite the envy. I met a lot of nice young ladies that way.

Thought He Might Be Interested in Accounting

But after leaving school–and I guess kind of the influence of one of my schoolteachers, Martha King, was the lady that taught–not only did she teach shorthand, but she also taught bookkeeping, and I took a bookkeeping class, and I decided that that's what I wanted to do with my life, was I wanted to be an accountant. She was very encouraging, inspirational. I remember in my senior year, she had a heart attack and was out of teaching for a number of weeks, and rather than bringing a substitute in, they–because I was in the Future Teachers of America Club at that time, and that was kind of my vocation, chosen vocation, the school let me basically monitor that class or be the discussion leader with my classmates. So I would go visit her in the hospital, and I would get the lesson plans and the course material, and instruct my classmates throughout that period. Of course, when it was time for tests, they'd bring in another teacher to administer the tests. They wouldn't let me do that. But it was quite an experience to do that.

During Junior Year Switched from Accounting to a Major in General Business Administration

But I went off to college, a small junior college at that time, or branch college, at Utah State there in southern Utah, fully intending to become a CPA, and started off majoring in accounting and decided about–after I had gotten my Associate of Science degree and majoring in accounting and thinking I was well on my way, went off to Utah State in Logan, Utah, thought about midway through my junior year that this really wasn't as much fun as I thought it would be and it was a *whole* lot of work, and I wasn't really enjoying it as much as I thought I would, so I switched my major and went into general business administration and, quite frankly, went into more of a personnel and industrial relations avenue. I guess maybe this was precipitated by my mother's number of years working as a Federal personnel technician, that maybe personnel was a good place to go.

END SIDE 2, TAPE 1. AUGUST 13, 1997.
BEGIN SIDE 1, TAPE 2. AUGUST 13, 1997.

Storey: This is tape two of an interview by Brit Storey with Harvey W. Boyce on August 13, 1997.

Why He Chose a School in Cedar City, Utah

So you ended up with a general business background, but why did you choose Cedar City?

Boyce: Cedar City was, (a), it was close to home. It was only about three hours away. (b), it's a small school, same type of environment that I was coming out of from high school. There was a small population, student population.

I went and looked at the bigger schools. I had looked at schools in California, and I'd looked at schools in Utah. University of Las Vegas at that time was just a fledgling–beginning of a university. While some of my classmates went to Southern Nevada University, or whatever it was called at that time, it just did *not* seem that it was in my best interest to go there, that they didn't have an accounting program at that time.

Cedar City had a pretty good business school, had a good reputation, certainly to begin with. I had a second cousin that had gone to Utah State, again majoring in accounting, and while I had kind of thought that, well, obviously the right place to go was to go to Logan initially, going up there to see the campus and visit that, it was, (a), a long ways away from home, (b), it was awfully big, and ©), I didn't think I wanted to be that far away. And besides, it had a lot of cold spell, and I'm a proverbial banana-boat-type person, and I wasn't real thrilled about spending a lot of my life in cold, snowy-type days. So Cedar City, while it does have some snow, it doesn't have the protracted weather much like you find in northern Utah. And,–so that's why I went there.

It was a nice transition school, to go from the small high school to, shall we say, more of a medium-sized school and then make the step into a larger school. A lot of my high school friends, acquaintances, of course, went to BYU. I went up there, and I looked at that campus, and I went to the University of Utah, looked at that campus, but, again, because of the size, they were just very intimidating to me. So I opted not to go there.

Storey: Then Cedar City sort of fed you into–

Boyce: Yes. At that time it was a branch college of Utah State, and of course, it being a land-grant university, there was a criteria there that Utah State basically accepted, and if you had an Associate of Science degree, then all of your credits, your degree, was immediately transferrable without question, whereas, looking to go into a California school or even BYU or Utah State, it would cost me more time to achieve the same level, because their required classes were not necessarily the same required classes that I had to take, and so I would have ended up having to backtrack a little bit. So that was another governing factor of why did I go to Utah State as to go to other schools that I had acceptances at.

Storey: And you ended up going into the Navy out of Utah State.

Boyce: Yes, and there again, you know, your best-laid plans. You know, I definitely wanted to be an accountant, and my third year, which would have been my first year at Utah State, I decided maybe that wasn't where I wanted to go.

". . . I guess I always knew that I really wanted to go into the Navy . . ."

Then I ran into–I guess I always knew that I really wanted to go into the Navy, and that was a lot because of the influence of my dad and *his* experiences in the Navy, but what did I want to *do* in the Navy, I don't know. Just by happenstance, the Navy had a big recruiting van on campus, and I got to talking with the people there. I had always, I guess, had a kinship with aviation, was very interested in that. So in talking with those people there, especially the senior officer of that detachment, who happened to be a naval aviator, he said, "Well, do you want to fly?"

I said, "I don't know whether I really want to fly or not, but I certainly want to be involved with naval aviation." I said, "I thought maybe naval electronics, aviation electronics," because I, there again, had an interest.

He said, "Well, what's your courses that you've been taking in school?"

And I said, "Well, generally business."

And he says, "No science classes? No electrical engineering classes?"

I said, "No. Those are too hard. I don't want to do those."

How He Got into Air Intelligence

He said, "You know, there's an area that you *might* find to be interesting, and it's called air intelligence." He said, "That's one of those career lines where they take a lot of different disciplines: law, general business. Any number of college vocations would get you into that pipeline."

I said, "Well, gee. Tell me more about it."

So he more explained it. He said, "You're part of the squadron. You're the intelligence officer. You do all the pre-flight work with the air crews, you do all the debriefings and all of that." Of course, you see enough movies, and over time, you've seen the intelligence officer at work, the air intelligence officer.

Took Pre-flight Training in Florida at the Naval Air Station Penscola

Well, it had a certain degree of appeal to me, so I took the examination, and I qualified. As part of the program then, if you went into air intelligence, you basically had to go through the beginning part of the syllabus that every naval aviator goes through. In other words, I went to Pensacola [Florida]. I went to pre-flight. I went through the beginning naval flight officers' program, so I learned basic navigational

skills and weight and balance computations and communications procedures and escape and evasion procedures.

Attended the Air Intelligence Training School in Denver at Lowry Air Force Base

Then leaving Pensacola is where I separated somewhat from my counterparts that were going to become pilots and flight officers, and I came actually to Denver, to the Lowry Air Force Base, where the Joint Armed Services had the Air Intelligence Training School there. So I spent six or eight months here in Denver going to that school at Lowry Air Force Base. In my tenure there, pre-student and post-student, I worked as the yeoman, so to speak, for the executive officer for the naval detachment that was assigned at Lowry. That's kind of how I got off into that bent.

"I really enjoyed my career, at least that part of my career, in naval air intelligence assigned to a reconnaissance squadron. I went overseas on the *Forrestal*, and then on the *Kitty Hawk*, got involved in some very high tech, at that time, certainly, in the 1960s, the beginning of computerized intelligence, quite frankly. Extremely interesting. . . ."

I really enjoyed my career, at least that part of my career, in naval air intelligence assigned to a reconnaissance squadron. I went overseas on the *Forrestal*, and then on the *Kitty Hawk*, got involved in some very high tech, at that time, certainly, in the 1960s, the beginning of computerized intelligence, quite frankly. Extremely interesting. I guess that's kind of where I started to get my investigative skills honed, because that's what I was doing, was investigating targets and doing research and intelligence reports and that, to better prepare my air crews.

". . . I guess it was kind of a natural to go into public utilities, because, like an intelligence officer, you're a jack of all trades and you're master of none. So you do a lot of research in law, and you do a lot of interconnected work with professionals . . ."

So I guess it was kind of a natural to go into public utilities, because, like an intelligence officer, you're a jack of all trades and you're master of none. So you do a lot of research in law, and you do a lot of interconnected work with professionals, whether they be electrical engineers or hydrologists or hydraulic engineers or whatever. There's very much of a like pattern of relationships between intelligence and in public utilities.

Storey: Were you in Vietnam?

Served on the *Forrestal* in the Gulf of Tonkin

Boyce: I was not actually *in* Vietnam. I was in the Gulf of Tonkin on the carrier.

"I never spent any time in-country at all. Naval aviation air intelligence types, actually, we had absolute restrictions. We could not fly over in-country areas. I know that there *were* intelligence officers in-country on the ground, but as air

intelligence officers, we were not permitted to fly anywhere within the theater of operation for fear of capture . . ."

I never spent any time in-country at all. Naval aviation air intelligence types, actually, we had absolute restrictions. We could not fly over in-country areas. I know that there *were* intelligence officers in-country on the ground, but as air intelligence officers, we were not permitted to fly anywhere within the theater of operation for fear of capture and all those kinds of stories that were associated with that. There was actually a piece of paper in my personnel file that just literally restricted where I could go and who I could deal with from a security perspective.

Storey: But you were dealing with the Vietnam Conflict?

"As a matter of fact, at the time of the *Forrestal* fire was right after the restriction had been lifted, the administration's restriction on air strikes into the Haiphong Harbor and that area. As a matter of fact, we were launching a major air strike on the day of the *Forrestal* fire. There was three carriers involved; the *Bonhomme Richard*, the *Oriskany*, and the *Forrestal* were all three sending their air wings as a combined air strike in to bomb Haiphong when that occurred. But I did a lot of targeting, a lot of photoanalysis, and investigation of actual South and North Vietnam targets. . . ."

Boyce: Absolutely dealing with the Vietnam Conflict. As a matter of fact, at the time of the *Forrestal* fire was right after the restriction had been lifted, the administration's restriction on air strikes into the Haiphong Harbor and that area. As a matter of fact, we were launching a major air strike on the day of the *Forrestal* fire. There was three carriers involved; the *Bonhomme Richard*, the *Oriskany*, and the *Forrestal* were all three sending their air wings as a combined air strike in to bomb Haiphong when that occurred. But I did a lot of targeting, a lot of photoanalysis, and investigation of actual South and North Vietnam targets.

Storey: Tell me about this incident on the *Forrestal*.

The Fire on the *Forrestal*

Boyce: Well, that's one of those things that, I guess, as a survivor, you're glad you survived, and it's an experience that you never forget. It's a well-documented fire. Matter of fact, they even used the shipboard camera footage of the fire for the Navy's fire-fighting training film. It occurred about thirty years ago this last July 27th, as a matter of fact.[6]

As I said, we had a major air strike getting ready to go. We had all of our airplanes that were on the flight deck were *fueled, armed* with bombs, missiles. An interesting side note, *now* Senator John McCain from Arizona was a pilot of an A-4 attack aircraft. He was in the process of being readied to taxi up onto the catapult to be launched, and an aircraft, an F-4 Phantom fighter back in the aft part of the flight

6. July 29, 1969.

deck was in the process of starting up, and for whatever reason–and I guess that's well documented in the Navy–at the time he switched from the external power source that's utilized to start the jets to an internal power source, it caused a spurious signal to be transmitted down the launch circuits to one of his Shrike missiles, and so the missile literally launched on the deck. It went straight forward, and as circumstances happened to be, the A-4 has a higher clearance from the bottom of the aircraft to the flight deck than the strike missile was moving at, but Senator McCain's aircraft had a center-line fuel tank with about 300 gallons of jet fuel attached to the bottom of his airplane, and this strike missile went right straight up the flight deck, right underneath his airplane, and just cut that fuel tank open like a canning knife would do, dumped all the fuel onto the flight deck. Of course, the aircraft is running, jet exhaust, and that eventually caused that fuel to cook off and to become flames.

Well, in the course of doing that, luckily the missile didn't explode, because all the arming switches had not quite set yet, but had disintegrated, obviously, as it went into this fuel tank, and so shrapnel started to permeate out of that missile, and it, of course, ruptured other adjacent aircraft fuel tanks and it just kind of dominoed from there to where ordnance as it got hot, started to literally cook off and explode. There was, I believe, seven 1,000-pound bombs that exploded either hanging on aircraft or having fallen onto the deck from aircraft, laying on the deck, on the after-third, I guess you'd say, of the flight deck, literally punching holes through armor-plate steel that's about three inches thick, did a lot of destruction, obviously, to the flight deck. I mean, seven major holes that no longer can be used, with the heat and the compression, a lot of structural damage to the aircraft carrier itself.

The five-inch turrets on the side of the flight deck were literally opened up like somebody had used a can opener, just burned-out hunks of raw metal. Ordnance fell down inside the ship, one going down an air shaft and cooking off or igniting, exploding, I guess, in what they call the air shaft down by after-steering, which is the place where you steer the ship from remotely rather than from the wheelhouse.

Storey: The place that's supposed to be armored.

Boyce: Well, I don't know that it's really supposed to be armored, but the fact that it went down an air shaft–the armor is on the exterior part of the hold, so this was very vulnerable. Because the ordnance went off in the aft section and exploding downward through the flight deck, there were berthing compartments right underneath there mainly that were assigned to air wing personnel, a lot of casualties were from literally sailors who had been working all night on the aircraft that were then being launched, who had just retired, had gone to bed, and were sleeping days and were literally killed in their beds without a chance to respond.

The major fire was out, literally was put out, even though all of the fire-fighting equipment and personnel, for that matter, on the aft part of the ship was destroyed or killed. Fire hoses had to be rigged from the forward part of the ship and played out to the back part of the ship, so tremendous lengths of hoses that had to be run out across the flight deck and literally losing that amount of equipment from the fire and the explosions, we had to rely on the other carriers who were literally heloing

fire-fighting equipment over to us and taking the wounded over to their ships to help lighten the load of our own medical facilities. So it was quite a team effort with that kind of fire raging both above deck, below deck.

We had two destroyers that were–they follow along behind the aircraft carrier to act as a plane guard to pick up people that might fall in the water or plane that crashes. They literally came right alongside of the aft end of the ship and sprayed, used their water hoses to help spray water onto our fire, at great peril, because they literally were taking the fallout of the shrapnel as this ordnance cooked off into their own structures. So a lot of people did a lot of work to help keep us afloat. We were able to keep afloat. We didn't lose the ship.

A strange, one of those things that you hear, a kind of aftermath story, the pilot that was in the F-4 that the missile launched from literally turned in his wings. He felt absolutely convinced that it was his *fault* that caused that. It was later determined that it was nothing that he had done. He had just done his job. It was just one of those freak major things. But he literally turned in his wings.

Acts of heroism that you wouldn't believe, with that many aircraft manned, ready to go, the irony of it is not one aircraft crew member was lost in that whole melee. We had pilots from our squadron up and talking to them. Obviously, watching all this transpire before their very eyes, and they're trying to–"Okay. I've got to get out of here. How do I do that?" get befuddled and confused. Many, many accounts that I heard personally were pilots and navigators commenting, "Here I'm trying to get unhooked from my airplane and get it shut off and get out of the thing, and all of a sudden there's a ladder banging against my canopy with a plane captain there to get the canopy open to get me unhooked, to get me literally dragged out of the cockpit and thrown into the safety nets on the side so that they would be safe, and did it at risk of their own safety.

I remember the air group commander that was leading that strike. I talked to him in the wardroom that night, and he said that he had gotten so confused and disoriented with what was going on, and literally looking at his aircraft becoming engulfed in part of this fuel that was burning, didn't know what he was going to do, and he couldn't get the harness to release on his seat. He tells the story of here was this plane captain of his literally banging on the aircraft to get his attention, and when he looked down, here was this young man, very slight stature, maybe weighed 120 pounds soaking wet with a good peacoat on, and this lad had three, four, five, or six tie-down chains, which are quite heavy, draped over each shoulder, signaling to this pilot to follow him.

As this plane captain, literally running backwards through this wall of flame, directing that pilot to follow him, and he literally directed the plane forward, through the wall of fire, all the way forward, up onto the flight deck, got him to shut down, tied him off so the plane wouldn't roll off the deck, set the boarding ladder up there and got him out. The pilot was literally in tears that evening when I talked to him about it. He says, "I'm putting him in for a Congressional Medal of Honor." He

didn't get it, but certainly was awarded, I think, Navy Cross or something very high honor because of that act of heroism, absolutely unselfish.

I recall, after the fire, coming back to Boulder City on leave. And before I go there, I've got to interject just a real quick story. As I said, my wife was pregnant, and another fellow that worked in the same group that I worked with, his wife was expecting at the same time, and we literally had a bet whose wife was going to deliver first after receiving the news of the fire. As it turned out, my wife just decided to wait a long time.

But in my spaces, our office compartment was right below the flight deck and, as circumstances had it, there was literally an F-4 Phantom and an A-3 tanker parked right above our compartment and, quite frankly, made the cover of *Life* magazine of the fire, of this sailor up on the superstructure with a fire hose playing water onto the aircraft, the tanker, and the F-4, and it was literally that sailor that kept *our* lives protected, because those aircraft never became engulfed in the fire. He kept them washed down until they were able to be moved forward. So I owe my life, I guess, to some sailor. I don't know who it was, but he's on the cover of *Life* magazine.

Anyway, after the fire, we [transited] ~~transferred~~ back to the United States. They had a "ham shack",[7] a bunch of radio guys on the ship, so we had our own ham shack and literally were doing ham radio patches to the States, and it was quite an experience to talk ship to shore and that type of thing, because you had to allow them to switch from transmit to receive, and also the ham operator that had the phone patch on the other end had to do the same thing. But I remember, as we came back from the Philippines down through or literally across the Indian Ocean and back around the tip of Africa, we got into a typhoon, and as we were transiting back towards the tip of Africa, we picked up two destroyers who had gotten stranded up around Madagascar and the Indian Ocean there where the Suez Canal had been closed, and so they had no way to get home. So they joined up with us so that we could refuel them.

High Lined over to a Destroyer for Three Days During the Voyage Back to the States

So I had an opportunity to high line on the high seas, to go over by high line and ride one of those destroyers for three days. That was an experience to, you know, (a), to do the high lining, and (b) to be on a destroyer, which really is where I had started out in my OCS [Officer Candidate School]. I had gone to destroyer schools up in Newport, so here I was on one for a while. I had a lot of fun.

Storey: This was transiting the *Forrestal* back?

"So we were three weeks at sea, literally, with no way to protect ourselves. We had a blown-up flight deck. Most of our aircraft that was flyable had been transited over to other aircraft carriers to supplement them. . . ."

7. American slang term for a short-wave station location.

Boyce: Bringing the *Forrestal* back to be repaired after the fire. So we were three weeks at sea, literally, with no way to protect ourselves. We had a blown-up flight deck. Most of our aircraft that was flyable had been transited over to other aircraft carriers to supplement them. They literally stayed in the Gulf of Tonkin.

That's how Senator McCain ultimately became a prisoner of war, is because his aircraft, even though it was damaged, the fuel tank was damaged, the aircraft wasn't harmed, or it was easily repaired. So he and his aircraft transited onto another carrier, stayed in the Gulf, ultimately was shot down and captured.

". . . as we came back, there were just thirty days at sea, long, boring days, because we had a damaged propeller shaft because of the explosions, so we couldn't make a great deal of speed, at least not comfortably. We *could*, but a vibration would set up. So we nurse maided these two destroyers back. . . ."

But as we came back, there were just thirty days at sea, long, boring days, because we had a damaged propeller shaft because of the explosions, so we couldn't make a great deal of speed, at least not comfortably. We *could*, but a vibration would set up. So we nurse maided these two destroyers back. And then the British had an oiler that was headed back towards England that had enough fuel that they met us down and around the tip of Africa and were able to provide us fuel as we transited more towards the Canary Islands and that until such time as we could make it from the mid-Atlantic over to where oilers from the Navy could refuel us. So it was a logistical problem inasmuch as it wasn't anticipated, obviously, and so, in order to get the logistical support to *fuel* us and *supply* us on our transit back, it had to be done very quickly, and so–

END SIDE 1, TAPE 2. AUGUST 13, 1997.
BEGIN SIDE 2, TAPE 2. AUGUST 13, 1997.

Storey: You brought the two destroyers back.

Boyce: Back with us until such time as they could turn and go north safely with their own fuel. But in transit, the irony of it–and this gets back to the ham shack–is that when my son was born, I got the typical Red Cross message traffic. You know, I woke up one morning with a phone call from the ready room and being told to go to the radio shack, that there was a message for me, and getting that, and literally that afternoon, as far as I was concerned, was able to go to the ham shack on the *Forrestal* and, via a phone patch through a ham operator in the Carolinas somewhere, called the hospital and talked with my wife a few hours after delivery. I guess it was probably in the evening her time, and the nurse went down and got my son, got him to cry so I could hear him. The guys in the radio shack made the comment that that was another *Forrestal* first.

Asked to Speak to the Senior Class in Boulder City about Experiences on the *Forrestal*

So, when we got back on leave, it was the first time I'd seen my son, and my wife and I and the family went to church, and they asked me to get up and basically make a few comments that were relative to the experience that I'd just gone through. Well, the outcome of that was my high school English teacher came up to me afterwards and says, "Could you come talk to my senior class tomorrow?" I said, "Sure." So went to the high school and went into this new auditorium that–

Storey: This was in Boulder City?

Boyce: In Boulder City, yeah, back into the auditorium that I'd been shown years earlier, of course, and they brought in the entire senior class, and I talked to them for about an hour, an hour and a half, and told them of my experiences. But I think the important thing, the message here, is that I conveyed to those high school students, and recognizing that I'm only four, five years out of high school, six years, I guess, by that time, 1967 time frame, that here I was talking to seniors six years ago that could have been *me*, about experiences of youngsters not much older than them, literally high school students that had just gone into the enlisted ranks and had literally, unselfishly given their lives without regard to their safety to protect and to save that ship and to save those air crewmen.

The message there I was trying to get–you know, of course, this was the age of hippies and everything else that was going on, and there was a *lot* of *bad* press about the youth of the nation, and I wanted these students to understand that not all the youth was bad, that there was a lot of good in the youth, and that they needed to dedicate themselves. You know, high school was a fun time, but things became very serious and very real, and death became very real, to people not much older then them in circumstances, so that they should be aware of that.

I also recall that one of my idols, I guess you'd call an idol, a role models, as I was going through high school, was a fellow by the name of Wade Taylor. Wade Taylor got an appointment to the [U.S.] Naval Academy, became an officer, subsequently retired as a nuclear submarine commander. The only reason I bring Wade Taylor up was because Wade Taylor had a sister who was in my class, was my age, a good friend of mine, but Wade Taylor's father was the regional director in Boulder City at the time that they lived there.[8] Wade Taylor subsequently became the chief–I don't know if it's the right title–chief engineer for Reclamation. I think he was assigned here in Denver, subsequently retired. I saw him a few years ago. But Wade Taylor II was Wade Taylor, my role model's, father, and so Wade Taylor III was the fellow that I'd gone to school with.

Storey: There weren't any Chief Engineers named Taylor.

Boyce: Maybe not. I'm not just sure what his title was here. I know was in the Denver office, but he was certainly the regional director in Boulder City before coming to

8. Wade H. Taylor was regional director March 1956 through October 1959. In 1960 he was Chief of the Division of Power Operations and General Engineering, subsequently known as the Division of Power Operations and the Division of Power O&M in the Denver office–also known as "600." The 1973 Denver phone directory shows that position as "vacant."

Denver, I believe. I don't know whether he actually spent time in the Washington office or both. I mean, I'm just not that familiar with his career, but he was an electrical engineer, I know, and a former regional director, a consummate gentleman.

Storey: Well, before we go on, tell me where you were when all this started on the *Forrestal* and what your impressions were.

Was in the Integrated Intelligence Compartments Just under the Flight Deck When the Forrestal Fire Began

Boyce: Well, I was in the integrated intelligence compartments, and that's on the O-3 level, which is the level immediately below the flight deck. In other words, my roof of my compartment was the flight deck. I was at work. I was, at that time, briefing the Admiral's secretary, flight secretary they called him, as to what the mission was. I had just completed briefing the air group commander that was leading the strike, showing him the roll photography that our aircraft had taken the day before of the route so that he could visualize what his checkpoints and what the terrain would look like.

At the time that the fire broke out, I remember that when it occurred, as those bombs cooked off, that we had a lot of equipment becoming projectiles below spaces, getting literally knocked out of my chair, not knowing *what* was going on because we were below decks, and waiting for any kind of word. And, of course, we had a–ship had gone to general quarters condition at that time, and, of course, you stay in your spaces until you were told otherwise, and as the fire-fighting efforts continued and as they started relocating personnel and that, I was directed to take at least the people that I was in charge of, we went through an escape hatch and went forward along with the passageways until we could get up into the forward area of the ship and go to our regular reporting stations so that they could get an accurate head count as to who was where and who was not where.

It was interesting, again, going back to the fact that this occurred in the morning, and I guess we had a muster, and as I recall, that day I was the duty officer for our squadron, so I remember that it was my charge to get our squadron members mustered on the flight deck and get them accounted and get to a situation where the commanding officer could speak to the crew, to the squadron group, and that he got a message back to his boss, which was the commodore of the reconnaissance aircraft in Sanford, Florida. Basically, it was telling the commodore the status of the squadron, the number of aircraft lost or damaged, and the status of the personnel, and the air wing commander, operations officer, called the commanding officer's wife, the executive officer's wife and the leading chief's wife, and having them come down to his office and taking them into a very obscure room and denied that a meeting had ever transpired, but conveyed to them that they had good reason to believe that, while there was some injuries, there was no fatalities in the squadrons and that they were to quietly notify the next of kin to that status.

My wife received a phone call from the commanding officer's wife from Sanford, Florida, back at Boulder City, telling her that that was the status. And so my

wife received numerous phone calls from family members all over the United States wanting to know what was going on, and she had to basically just tell them, "Well, I have good reason to believe everything is okay."

Of course, that night on the evening news, and, quite frankly, I wasn't even aware of this until just a few years ago, but Walter Cronkite's news coverage of the fire on the *Forrestal* obviously the leading news story in that evening's news, and my wife, all of the time thinking, "Well, he's on an aircraft carrier. He's safe," and, of course, then being told by the commanding officer's wife that I was safe, and then here's video coverage on the news that night of the aftermath of the fire and literally them pushing two of our aircraft from our squadron over the side, and her sense of doubt now, you know, had something transpired from the time of receiving the phone call until now that she's seen this coverage.

Of course, there's a number of hours transpired in there, but in your mind when you see that happen, it's real, it's now, and it's here, even though that footage had been photographed many hours earlier, obviously, because we didn't have the satellite links like we do today. So that footage had to be photographed and then transported and then somehow electronically conveyed to the networks. So a great deal of doubt still jumps up in her mind when she saw that. So until I could literally call her on the phone from the Philippines and talk to her, she still had that *little bit* of doubt.

Storey: Still nervous about it.

Boyce: Still nervous. Is he really okay? But it was interesting. My daughter, just the other night, had seen a documentary, as I said, of thirty years ago. They did a documentary on the Discovery Channel about the events of the *Forrestal* fire, and while, as a youngster, and she's seen my tapes, and she's seen the training film and she's heard me talk about it, watching it here in this documentary and hearing the interviews that had been conducted post-fire time, she called me the other night, and she said–it's just very dramatic–she said, "I want to be there when you see this," she says, "because I want to watch your reaction to it."

I know my reaction when I saw the training film was one of sheer anger initially, because it implied initially that the crew of the *Forrestal* and those sailors that had unselfishly given up their lives and their sense of safety were a bunch of bumbling idiots and not well trained and that, with little recognition, at least initially in the film, that these people were laboring under very, very bad conditions with minimal resources and literally had to make do with what was left after that initial fire explosion.

So I remember very well, as we left the *Forrestal* as a squadron, we went and got new airplanes and literally went over onto the *Kitty Hawk* to go back to the Western Pacific again, to the Gulf of Tonkin. At that time, the Navy, instead of having DHS tape, they had 16-millimeter film, and all of the air wing as they came aboard *Kitty Hawk* and as we transited west, were required to go to the forecastle to see this film on this fire. I remember vividly here was this chief boatswain's mate on

the *Kitty Hawk*, probably in charge of damage control–I don't know what his role was, but he got up and portrayed this fiasco on the *Forrestal* as the result of poor training and just bad individuals being involved. As he starts this film and we start to see what it is, of course, we had been watching it for days, because it had been played on the *Forrestal*'s internal television system, and we knew it was us. We knew what it was. It didn't take but about thirty seconds of seeing this footage to know exactly what it was.

I remember my commanding officer, being a very senior commander, got up, and he told the chief to turn the projector off, and I never in my life have seen a naval officer just literally dress down a chief petty officer and told him where the cow ate the cabbage, and that for him to imply and to get up and state this was because of poor *training* and poor *people*, he was totally out of order to do that. And en masse, the entire squadron got up and *left* that showing. (laughter) I guess it was our demonstration at that time of defiance, but I know that even seeing the training film later on, that was my initial reaction, again, is that it's not properly represented. If you look at it in the right context, yes, it's there to show what can happen as opposed to that.

Participated in the Ceremony for Retirement of Admiral John McCain with Admiral Thomas Moorer

Another irony, going to Senator McCain is, on the *Kitty Hawk*, as we went back to the Western Pacific, Senator McCain's father, who was at that time Admiral [john] McCain, was Commander in Chief Pacific and was retiring from the Navy. So the *Kitty Hawk* was used as the flagship tied up at Pearl Harbor for that transition retirement ceremony and the passing of the flag to the new Commander in Chief Pacific. I had the honor of being designated as the chief of naval operations' escort officer for that, so I was with Admiral Thomas Moorer, who was then Chief of Naval Operations, and had the opportunity to meet Senator McCain's father at that time. [He was] a consummate gentleman, just a consummate gentleman. I just have a great deal of respect and admiration for him as a naval officer.

But just, you know, one of those little quirks of irony here. I'd been in a vehicle with John McCain in the back of a pickup prior to his going over to the *Constellation* and ultimately becoming a prisoner of war when he was a young Lieutenant hot-shot Navy attack pilot. I'm sure he doesn't even remember me, but I remember him vividly. And here, months later, I met his father, and at that time he was already a P.O.W. So, just one of those weird chances and circumstances that, I guess, life's ironies.

Storey: How much longer were you in the Navy?

Medically Retired from the Navy in 1971

Boyce: I stayed in the Navy–that was 1967, and I was medically retired September 30, 1971. Leaving the squadron, I ultimately became an instructor in that very same intelligence computer system back in, then, Albany, Georgia, because the training command and

the air wing that I originally started with, a reconnaissance attack wing, because of base closures and that, the base at Sanford, Florida, was closed, and the air wing was moved to an old SAC [Strategic Air Command] air base at Albany, Georgia, just down the road from Jimmy Carter's peanut plantation, as a matter of fact. So when I went back to the training command as an instructor, I went to Albany, Georgia, and went back in as a part of the training staff there.

Storey: Am I hearing that you had intended to make the Navy a career?

Was Selected to Go from Reserve Commission Status to Regular Commission Status

Boyce: Yes, I had. I had decided, along with my wife, that it was in my best interest–and this occurred while we were in Albany, Georgia–that let's stick out the Navy for, certainly, twenty years and preferably thirty. So I applied, along with about 1,100 other officers, to augment, which means to go from a reserve commission status to a regular commission status.

Also, at that time, the Navy was doing away with the occupational code of Air Intelligence Officer in favor of just Naval Intelligence Officer. So those of us that were trying to do both, become reserve to regular and air intelligence to straight naval intelligence in what we called the "double whammy"–I understand it was on an order of magnitude of a thousand to eleven hundred applicants to do that, and of that, somewhere on the order of magnitude, somewhere around a hundred of us were selected.

So my commission was changed from being a reserve officer to a regular officer, and I was on my way to do thirty years, and I guess that's maybe the beauty of it, is because in getting sick while in the service, and especially coming up with a weird disease that they didn't know what caused it, they certainly didn't know how to cure it, the Navy had an obligation to take care of me for life, so they medically retired me that way.

Storey: Okay. Well, believe it or not, we've been talking two hours again.

Boyce: Another two hours.

Storey: I'd like to ask you again whether or not you're willing for researchers to use the information on these tapes and the resulting transcripts.

Boyce: Yes. I have no problem with that.

Storey: Good. Thank you very much.

END SIDE 2, TAPE 2. AUGUST 13, 1997.
BEGIN TAPE 1, SIDE 1. AUGUST 14, 1997.

Storey: This is Brit Allan Story, senior historian of the Bureau of Reclamation, interviewing Harvey W. Boyce on August the 14th, 1997, at about nine o'clock in the morning, in the Bureau of Reclamation's Denver office. This is tape one.

Yesterday we talked about your naval career, but we forgot some of your Federal service that I think we ought to talk about, and non-Federal service.

Boyce: Okay.

Storey: When you were a lifeguard out at Lake Mead working for the Park Service, did you have any contact with the Bureau of Reclamation or anything like that?

Boyce: Actually, not really. I knew who the Bureau of Reclamation was and that, but I probably wasn't even, at that age, cognizant that the Department of Interior included both Bureau of Reclamation and the Park Service, as well as the Bureau of Mines. To me, it was two separate entities.

Storey: Was this more tourists, or was this locals who went to the swim beach?

Boyce: Actually both, tourists and the locals. At that time there were limited swimming facilities. I think maybe there was one swimming pool in Las Vegas, and this was at the time before people had a lot of private swimming pools. So you had predominantly a great deal of local traffic there, Henderson, Las Vegas, North Las Vegas, Boulder City.

Actually, the Park Service at that time had two swim beaches that they provided lifeguard service for, and still may at this time, I'm not sure. But the one that I was at was not the main swim beach that typically is known on Lake Mead, which is over near Hemingway Harbor. I was over at–it's the north shore over towards Henderson, a smaller swim beach, and just adjacent to one of the smaller marinas there. And so I had a little bit of a drive every morning and afternoon to go down there.

Storey: After you quit working for the Park Service, you went into Anderson Dairy for a little while.

Job at Anderson Dairy

Boyce: I worked at Anderson Dairy for a short period of time in the production plant, cleaning milk cans and casing out the pure pack machines. As the milk was put into the cartons and sealed, I would take the cartons as they came off conveyor belts, set them into the milk crates, and then stacked those up and would send them off to the cold room to be loaded onto the trucks for distribution.

Storey: These were the cardboard cartons?

Boyce: Yeah. At that time, Anderson Dairy was actually packaging in glass bottles, so that I did a little bit of packaging of the glass bottles, not very much. Then I worked also–

the Anderson Dairy produced cottage cheese, sour cream, specialty products and that, so I got to work in just about every aspect of the production plant. I got very well acquainted with cleaning a production plant like that, because everything had to be scalded and cleaned for safety's sake. So it was quite an experience. I worked basically the night shift, came on about five o'clock in the afternoon is when we started production, and many a time would go home around daylight.

It was the major dairy, still is the major dairy production plant in southern Nevada, in Las Vegas. Not only did we package Anderson Dairy Products, but we packaged for other dairies that were actually in the stores, like Gold Medal and Bliss Dairies and things like that. It was an experience.

The only part of the plant that I did not work in is where they made the ice cream, because that was done during the day shift, but I worked in every other aspect of it. It was a great deal of fun. It was a lot of hard work. Obviously, in the middle of summer, very humid in the plant, and you'd work up a good healthy sweat. You could drink down a half gallon of milk in a single gulp, practically, just from the sheer exertion. But it was a great experience and a lot of nice people there.

Went to Work for Los Angeles Department of Water and Power as a Relief Operator

So I worked for them for just a very short period of time, and then an offer came from the city of Los Angeles Department of Water and Power to go to work at Hoover Dam as the relief operator, and obviously it was closer to where I lived. I didn't have to commute. Much better pay, and as I was trying to earn money to go to college and things like that, that was obviously the driving factor–how I could maximize income for schooling.

Worked for LADWP in the Summers of 1962 and 1963 Learning the Fundamentals of the Electric Power Business

So I spent the rest of the summer of '62 and the summer of '63, those two summers, working for the city of Los Angeles, and that's really where I got my fundamental learning, training, in the electrical power business, reading meters, cleaning turbine pits, switching up in the switchyards, cleaning batteries, reading battery specific gravities, gathering charts that recorded the various activities of the generators and of the transmission system, filing those away. Just the very first part of the power-billing cycle begins at that level. So when I ultimately came to work for Reclamation, it was like stepping over onto the other side, taking those very charts and the reports that I used to record every six hours or every twelve hours, now I was using those products to build monthly power bills for the customers. It was a *good* fundamental learning process.

The other thing that was interesting is the shift foreman for the city of Los Angeles–I guess he was the senior shift foreman, a fellow by the name of Charles Hunter, had developed a training program for the operators, and he would leave me a mimeographed question-and-answer-type thing that I would have to research like an

open-book test, but you had to go through the plant, and you had to find where various equipment was, identify its location, what its function was, how it interconnected with the rest of the system.

So it gave me a good foundation in how Hoover internally electrically works, what various pieces of protective equipment were for, what a CT and a PT and an OCB and all those things that you commonly would hear people discussing, but you never knew what the acronym stood for. The training I received was what a CT would do, and what a PT was used for, and how to check for fault indications when there had been a relay function, things like that. And actually how the transmission system was interconnected *with* Hoover at the switchyards, how a step-up and step-down transformer worked, how the various hydromechanical protective devices were utilized to protect the generating equipment so that if there was a fault on the line or a fault in the plant, that we didn't destroy very costly equipment that way.

I spent a lot of time walking the roof of Hoover Dam with the powerplant checking for damage. That was one of the things a relief operator got to do. Also, it was a good place to pick up money, because tourists liked to throw dimes, nickels, quarters, silver dollars, half dollars from the lip of the dam, so it was always generally a pretty good night to walk the roof. You'd generally pick up a good handful of coinage. And, of course, we were checking for damage, rocks falling off, coming loose on the sides of the canyon walls and breaking insulators or damaging equipment. That was really what I was up there for. And then each shift, we'd always go through all the switchyards and make sure that everything was normal there, that you didn't see any arcing, you didn't hear any buzzing in the transformer that would indicate that something in the transformer was going bad.

I recall a number of evenings you'd get the summer thunderstorms and lightning, and, of course, lightning strikes on the power system would cause relay action. I recall one evening–I think we had nineteen relays in an eight-hour shift. So, I spent most of my time running from wherever I was doing whatever I was assigned to do that evening. When they had a lightning strike on the system, they would code me and I'd be told to go to such and such a switchyard and check and make sure that the breakers had reset, and to give the operators a call from the switchyard, let them know that the switchyard was *intact*, there was no damage to the equipment, that it had properly functioned, reset, what had caused the relay, and that was, again, reading the various target indicators on the CTs and PTs. It was an extremely busy evening.

I remember, at sunrise, sitting on the outcropping of rocks up by the relay house on the Nevada side up above the L-A and M-W-D[9] switchyards and watching the sunrise come up and watching a lightning strike literally across the canyon on one of the pinnacles of rock. Quite a spectacular light show that night.

I recall [while] doing my business in the early evening, walking up to a ~~transformer~~ [oil circuit breaker] in the A&N yard, Arizona & Nevada yard, and a

9. Metropolitan Water District of Southern California..

~~transformer~~ [oil circuit breaker], 230KV step-up ~~transformer~~ [oil circuit breaker] , was just buzzing very loudly, and while I'd never heard or seen one of these things before, this did not appear to be normal. I walked over and put my hand on the ~~transformer~~ [oil circuit breaker], found it to be very hot, which is an indication that the oil was starting to percolate, and calling the dispatcher from the switchyard phone and being told in no uncertain terms to get myself *out* of that yard and to get to the top of the dam and pick up the shift foreman, to get him back up there to inspect it.

That resulted in having to take that ~~transformer~~ [oil circuit breaker] out of service that night. So we had to do some switching to isolate it and set that ~~transformer~~ [oil circuit breaker] into a non-service status, so the next day that the maintenance people could go up there and open the inspection hatches and inspect it. That type of failure, should that have failed, that's very costly, because as the transmission line would go out of service, the city of Los Angeles or whoever happened to be servicing load through that ~~transformer~~ [oil circuit breaker], that's a very costly outage for them and thousands of dollars per hour lost revenue. So it was better to take it out and reroute the circuit, as opposed to damaging the equipment or having it fail and it being out for a number of weeks or months while it was repaired, parts were made.

It's an extremely interesting way to learn the electrical business and to get a foundation in what I ultimately started doing as a formal occupation in public utilities.

Storey: A relief operator sounds to me like somebody who's operating the generators.

"Relief operator was used in the context of you were there to provide relief for the people that had the normal jobs so that they could take vacation time. . . ."

Boyce: Relief operator was used in the context of you were there to provide relief for the people that had the normal jobs so that they could take vacation time. And you also spend time doing preventative maintenance, and I don't mean mechanically working on a generator. I mean cleaning, making sure the oil was at the proper levels, air cushions were put into the oil tubs to ensure that there was plenty of oil pressure available to the bearings and that. Also, periodically taking high-pressure air hoses and cleaning the carbon dust away from the carbon–boy, isn't that funny–off of where the transfers take place on the brushes, the carbon brushes, where they would have a tendency to slump off carbon, and it would have a tendency to fill in the cracks of the commutator and that, and then you'd start to get arcing between phases of the generator. So, periodically I'd take a high-pressure air hose and have to blow those out.

Storey: You'd have to be down in the machine to do that?

Boyce: Not actually in the machine, just above–you were right above the rotor, which was in a compartment immediately beneath the deck plates that you were standing on, but certainly you were in close proximity.

And then each month, one of the functions of that position was you had to go through and come in from the underside of the rotor and literally cycle all of the water valves for the cooling-water coils, and there's a number of cooling-water coils per generator, so you got to turn a lot of valves on a shift, opening them, or actually taking the valve that was open, cycle it all the way closed, and then cycle it back open, and do that, each coil of the generator and all the generators in the plant. So that was a long night of twisting knobs.

Storey: Why did you do that?

Boyce: They do that to make sure that the valve did not corrode, the water moving through the valve would not corrode it, so that in an emergency, if the cooling coils sprung a leak, in order to isolate that water from going into the oil tubs, they'd have to shut those cooling-coil water supplies off. So it was a routine to make sure that those valves would function if they needed to do that.

Storey: Tell me how you got this job.

Boyce: Basically just word of mouth. A couple of my friends had done this work before and had mentioned it to me, and I had made an application to the city of Los Angeles. Of course, it didn't hurt that my dad was working for them at the time and knew how to get kind of through the front door and be allowed to even make an application. But I did have to take a test, at least to demonstrate that I had the aptitude to do the job. And typical of the city of Los Angeles, you had to requalify each year, so I took that test for each year that I worked for them. But it was a way that the city of Los Angeles provided an opportunity for dependents of employees to work summers, especially if there was any type of indication that possibly, after that individual got out of college, that they might come back as a permanent operator.

L-A was very good about training their own and taking care of their own, to let them build up to the system. Matter of fact, there's a couple of fellows that I went to school with, high school with, that are still working for the city of Los Angeles, different capacities, but, nevertheless, it was a good program to invest in their own, so to speak, and get long-term dividends.

Storey: Tell me more about cleaning. You said something about cleaning–

Boyce: Turbine pits?

Storey: Yeah, turbine pits.

Cleaning Turbine Pits

Boyce: That is an experience that everyone should have, I guess. Turbine pits, basically, this is an area adjacent to the wicket gates, or actually the top of the wicket gates which control the amount of water being allowed to enter into the water wheel from the penstock.

Storey: This is on the *outside* where all those levers and things are?

Boyce: Right. This is on the outside of–it's actually a pit in the concrete structure, the floor of the powerhouse. It's down on the second floor. The water wheel is below this deck plate, in what they call the scroll case, and the wicket gate sits inside the scroll case, and it actually looks like a Venetian blind set up on its edge, and that's the way a wicket gate operates, is, as the control arms move back and forth–and these are all linked, much like a Venetian blind is linked–as you open and close, it exposes more opening to the water wheel for the water to come from the penstock through this scroll case, which is nothing more than a circular pipe with the water entering from the penstock, racing around this circular pipe, and the only way the water has to exit is to go through the vanes, which are on the inner diameter of the circular pipe, through the wicket gates, which are angled such that as the water transits from the scroll case through the wicket gates, it is directly hitting at the proper angle on the vanes of the waterwheel, causing it to rotate. Water then transits through the waterwheel in a downward spiral configuration and exits out through the center part of the waterwheel into the draft tube, and then that exits into the tailrace.

It's an important piece of equipment. It's kind of the throttle on the motor, so to speak, much like you have a throttle on your automobile. This is the throttle linkage that says how much fuel you're putting to cause the generator to move. Where a steam generator uses some type of a device similar to this to regulate the amount of steam hitting the turbine blades, this is regulating the amount of pure *water* under extremely high pressure that's hitting the turbine blades to rotate the generator.

Lubricating Wicket Gates

So, those wicket gates, obviously, because they move back and forth, have to have lubrication to make sure that that metal doesn't bind or seize. So, part of the maintenance responsibilities of the *maintenance* crew was to periodically lubricate these. And they were lubricated manually, much like you would take a grease gun and lubricate the ball joints on your car. Now, today, those are all done automatically. They've actually piped them so that they have a periodic lubrication process from a lube oil reservoir. But at that time it was all done by hand, and people that would do that lubrication, it was just like you lubricate a car, you sit there and you squirt grease into that grease fitting until you see it come out of the joints. Well, somebody had to clean the grease off the joints, and that's what you got to do when you clean turbine pits.

It would take an individual probably almost an entire shift to clean a turbine pit, because you literally were on your hands and knees using cleaning solvent and rags to cut this grease, the exposed grease, off of the outer housing of each wicket gate, and then clean them up and make it look sparkly clean, polish, and that. So it was a lot of time on your hands and knees on the extruded steel decking. So you learned how to take shop rags and make knee pads out of them, and got your hands well immersed in cleaning solvents and that. I guess it's kind of a badge of courage. If you've been an operator and you've cleaned turbine pits, it's kind of like a special club that you belong to. When you mention that to somebody that's done it, or in a

case where you'd meet somebody you used to work with years ago, generally the first thing that you react to is, "Well, you remember cleaning turbine pits?" It's just kind of a secret club, I guess, that we joined. Interesting process, but it had to be done. Of course, is one of those things that Hoover has been known for, is the plant always looks clean, and this was part of that cleaning effort.

Storey: As I recall that, there are a lot of nooks and crannies and cracks and various other things in a turbine pit.

Boyce: There are, and it all would have to wiped down and cleaned. So that's why I say it generally would take a full eight-hour shift to do one turbine pit.

Storey: Were you using rubber gloves with these solvents?

Boyce: At that time, no, we didn't. I guess I could have. It just wasn't the emphasis put on OSHA-types things like that back then. Don't really recall anybody using rubber gloves. Quite frankly, I think, it was just pre-sensitivity to the various chemicals that we have. We've come a long ways in recognizing harm that can be caused an employee by contact with the skin or breathing the fumes or something like that it was not at all really thought about that much. Certainly there wasn't the emphasis that we have today on it.

Storey: I take it you worked night shift, graveyard, whatever they want to call it.

Boyce: At Hoover, working for the city of Los Angeles, actually, they had three shifts. There's an operations group that went down each shift. I'd say the majority of the cleaning-type maintenance work was done on the graveyard shift, because there were not a lot of people around. It was a period of time when there wasn't as much demand for generators to be on line, so you could take them off line for eight or ten hours at a time and do that preventive maintenance and cleaning on them.

The day shift was a fairly busy day, because that's really when you do a lot of your outside inspections because you have better visibility–

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Boyce: –even though the switchyards and the switch gear on the roof of Hoover is well illuminated, it's just much better to see during the daytime.

Recording Operations Information

The other thing that we'd do on day shift once a month is I'd have to *read* counters on each of the oil circuit breakers. The counter would indicate the number of times that that circuit breaker had been operated over a thirty-day period. The city of Los Angeles was extremely preventative-maintenance-conscious. They kept immaculate records on how long something had been in operation, how many times it had operated over its life cycle, what temperatures equipment had operated at, just

very well documented. That was principally done by hand recording at that time. Now, today, with the technology, a lot of this is just automatically queried and recorded by computers. Especially as Hoover's been upgraded and the technology has moved ahead, a lot of things that the operators had to do by hand, as far as readings to various equipment, charts, and meters, that were done every shift, every eight hours and, in some cases, more during an eight-hour shift, are now done just routinely by computers with the change in technology.

Storey: Why did they want to know how many times?

Boyce: Actually, because Hoover was kind of the granddaddy of all the powerplants–the big powerplants, Reclamation, and Los Angeles and Southern California Edison, as the operating agents for Reclamation, were gathering data. This was the first time that a lot of this equipment had been constructed and had been put in place. A lot of subsequent dams, powerplants, the equipment therein, was designed based on the experience gained at Hoover, and so a lot of that data was more–you know, maybe it was overkill, but at that time it was kind of like maybe we were writing the manual at that time. What is it that we need to watch? Somebody had made a decision, "Well, we need to know how many times a circuit breaker operates over a period of time," and by taking that type of information, coupled with the voltages that were used or stepped up or stepped down in that transformer, the viscosity of the oil, the impurities that were recorded in the oil samples, the operating temperatures of the transformer, both the ambient temperature and the actual operating temperature, all of this, I'm sure, has been used, coupled with how many years, months, days, type thing that transformer successfully operated before it had a failure of some type.

I'm sure that the design and specification people have taken all this data into consideration as they have now designed specs and criteria for new equipment to be constructed and built for future plants. It was really just kind of a test bed, and, so, in doing that testing, that's why a lot of that information was recorded. I dare say that they don't record *nearly* as much now that we've got well over fifty years of experience with this type of equipment, and newer equipment has come along and new technologies have been developed. I don't think we do maybe as exhaustive monitoring of that. Maybe we do it more by computer and electronic sensing than we do by the old hand, go out and read and record it onto a read sheet.

But, nevertheless, certainly as an employee, it gave me a better foundation of what was being recorded, not that I necessarily knew how it was going to be used at that time, but now, looking back in retrospect and as I've evolved through my career, I can see where the benefits were gained and what that information was used for as things progressed.

An interesting little side note. In working for the city of Los Angeles during the summers, and we talked about this before, [at] an earlier session, about how the employees were transported by buses, water and power had its own bus. I think Southern California Edison didn't have that many people actually working at the dam, so they would use station wagons, but, certainly, Reclamation used three or four or five buses, I don't even recall, somewhere in that order of magnitude, typical

school buses. I mean, they were just, for all practical purposes, the buy-off-the-shelf school-bus-type vehicle.

The Relief Operator Drove the Bus down to Hoover

But as the relief operator, especially if you were working swing shift or graveyard, you got to drive the bus. I don't know whether that was a good deal or a bad deal, because, in the case of Los Angeles, it was a little short bus that had a split axle, electric split axle, and you had to learn how–the equipment or the vehicle maintenance chief would take you out and give you a driving lesson, and you had to satisfactorily show him that you knew how to drive a bus of that type of gearing and that.

But the benefit of it was that you got paid overtime. You got a half an hour of overtime every time you were the driver, because you had to go down to the compound where the vehicles were kept, open that up, get the bus out, and lock up the compound, of course, because there was nobody there at night, and be there when all the operators were ready to board the bus, drive them down there, get them there safely, of course, and then your counterpart that was coming off shift from swing shift would be the driver to take the bus back up.

Then, in the morning, you had the regular operators that vehicle maintenance people then provided the bus service. They brought the bus down in the morning when they brought the day shift on and they brought the graveyard crew back. But it was a way to get a little extra money because you were actually getting overtime, get time and a half for a half an hour that day or that shift. It would add up. So, an interesting experience to have to drive that bus.

Storey: You mentioned inspections. What kinds of inspections are we talking about?

Checking for Anything out of the Ordinary

Boyce: Inspections were–you were always checking for arcing, electrical arcing, noise, abnormal noise in a piece of equipment, oil leaks, water leaks, anything that would indicate that there was possibly an internal flaw in the equipment or that gaskets and seals where the various pieces of equipment joined together were starting to deteriorate, and they'd like to fix that before it became a major outage or would cause a major failure of equipment. So you always had to be mindful as you went through the plant. It became common nature, almost second nature, to just kind of look. And it wasn't that you were looking specifically for anything as you were looking for the exception, which is not an all bad thing to do, because later in my accounting career, you'd learn to look for the anomalies, not by what you saw, but the exceptions to what you saw. So, it was good training from that aspect.

And I find I still do that today. I walk through the powerplant for no reason at all, I'm just down there visiting, and I'm still just casually walking along and I will find myself looking, and I will say, "You know, there's a great deal of condensation coming off of this particular fitting," and go over and look at it, not that I'm going to

do anything about it, but if I were to see something that was out of the ordinary, I'm sure I would mention it to the people in charge down there and just say, "You know, I happened to be walking by such and such a unit, and I noticed that this was going on." They'll say, "Oh, yeah. We're aware of it," or, "Maybe we ought to go look at this," type of thing. But it's quite common to do that today.

Storey: What about inspection out in the yards?

Boyce: The yards–again, you were inspecting the superstructure, made sure that the insulators that were carrying the transmission lines and terminating the transmission lines were not broken, that there was no arcing between the transmission line and the structure, and just basically making sure that the structure and the lines and the connections of the lines to the structure were all satisfactory, that there was no looseness in them to where a line would start vibrating, for example, starting to develop a harmonic in a high wind or something like that where it could cause transmission phases, the line phases, to come close enough together that there would be an arcing between the phases, and, of course, that would cause the transmission line to trip out of service.

So, you just continue looking to make sure that everything was still put together the way it was put together and that nothing had been broken. It was not at all uncommon to find out in the switchyards, people had fired rifles or guns as they drove by in the car, and you'd find an insulator shot up, a common problem in the electrical industry today, and it was not an uncommon situation to find, especially in the smaller Kingman yard, which was farther away from the plant. Even though most people couldn't find it or see it, if you knew where to look for it, you could see it, and people with a gun seem to think that they need to shoot at something, you know.

Of course, just wear and tear, high winds during a storm or a relay action or a lightning strike on the line could cause a vibration in that line, would cause the porcelain insulators to break, crack. So you always want to be mindful of that type of stuff, because as that insulation, insulators, broke down, there was always a greater potential for an inadvertent transfer of electrical energy to a point that it wasn't supposed to go to, like ground or to another phase.

I always was very mindful of making sure that the perimeter fences around the switchyards, that they hadn't been violated, you know, people hadn't been trying to get in there, either for sabotage or idle curiosity, because they're extremely dangerous. Getting inside of a switchyard like that, if you don't know what you're doing in there, you can get electrocuted very easily. So you're always mindful of that.

You Had to Be Mindful of Your Own Safety

And then, of course, the other thing you were mindful of is your own personal safety, because you were out there. It was not at all uncommon to walk up on a snake in the switchyards. Horny toads, of course, are not dangerous to you, but scorpions, Gila monsters, you always had to be mindful of that.

The other, I guess you'd say, perk of that job was that you also had a number of occasions–certainly I did, and I know others that had mentioned they had–where you'd come up on one or two or even a herd of mountain sheep, and, of course, they're a beautiful animal, and you don't want to be close to them because they're wild, obviously, but they're a gorgeous animal, especially early in the morning or late in the evening when they were moving to feed and to water, it was not at all uncommon to see mountain sheep up in and around the switchyards. They wouldn't be actually inside of them, but they would certainly be up and around them where we were transiting. So, that was kind of one of the perks of the job, you got a chance to be relatively close to a very gorgeous animal.

Storey: How far out did your responsibility extend?

"The extent of my inspections would be just as far as the actual what we call the security area of Hoover, so it didn't extend much beyond the geographic perimeter of Hoover Dam and the seven switchyards there immediately adjacent to it. . . ."

Boyce: The extent of my inspections would be just as far as the actual what we call the security area of Hoover, so it didn't extend much beyond the geographic perimeter of Hoover Dam and the seven switchyards there immediately adjacent to it. I did not do any line patrolling or anything like that. That was done by the line patrol people for Los Angeles and Southern California Edison.

Testing the Carrier Wave Equipment Each Morning

The other thing we'd have to do is, especially if you worked the graveyard shift, each morning at, I think it was six o'clock, either five o'clock or six o'clock in the morning, you would have to be up at the relay house at the Arizona-Nevada yard to test the carrier-wave equipment, which is nothing more than a telephone system that's induced on the transmission line itself, and it was one means of communication between all of the operators on the transmission system. They could literally pick up the carrier line, what they call the carrier line phone, and call to a remote site, to another switchyard or substation somewhere. But it was the principal means of communication between the control operators at that time. So I would be talking to Parker Dam, I would be talking to Davis Dam, and I'd be talking to Phoenix on that carrier line. It was just a matter of every morning it was checked to make sure that the system was operating, just another redundant back-up, "let's make sure that the system works when we need it to work" type thing.

"The other thing you have to do . . . once a month you have to go through and read *all* the *batteries* . . . so all those batteries, you had to take the specific gravity of them, and that meant you had to use a hydrometer and check *every* wet cell, and, again, that all had to be recorded. There's a lot of batteries at Hoover. . . ."

The other thing you have to do, and this you generally do on day shift, once a month you have to go through and read *all* the *batteries*, and they have a number of batteries, both in the relay houses that provide DC voltage for control voltages, and so

all those batteries, you had to take the specific gravity of them, and that meant you had to use a hydrometer and check *every* wet cell, and, again, that all had to be recorded. There's a lot of batteries at Hoover. You'd be surprised. You'd think, it being a generating plant, that you wouldn't have to have batteries, but there's a lot of them there.

Storey: These are big batteries.

Boyce: Big batteries, big Exide lead acid batteries, and they were, seemed to me, 250-volt DC batteries, maybe even 125-volt DC batteries, but the bigger ones, I'm sure, were 250-volt DC. They provided the major source of control circuit voltages to operate the various controls remotely. If the powerplant operator wanted to open or close a breaker or a switch in the switchyard *remotely*, then that was the type of voltage that was being used, was the control circuit voltage.

Training Program as a Relief Operator

And again, in my training program, the syllabus that they have, I had to learn what all these control circuits were, the various voltages, the various pieces of equipment that operated relays. There's just a myriad of relay equipment throughout Hoover. One wouldn't even think about it because normally you don't see it, but it's there, and it has to be checked and it has to be cleaned. So, that was part of my learning experience. It's throughout the powerplant, it's throughout the switchyards. I mean, it's not just go to one room and find it all.

That was part of the training syllabus, was not so much what is it but where is it, and you had to go find it, and that had to be filled out in your open-book test. You had to tell exactly where, what floor, where it was located on that floor, what the room number or the vault number was it was in. Sure, I mean, I could go ask other operators, and they were all very helpful in saying–you know, quite frankly, I used my dad a lot, because he'd spent practically twenty-odd years by that time in the powerplant, being involved in the electrical maintenance. He had either worked on, installed, repaired most of that, and so if I'd find something I just couldn't find an answer to, eventually I'd either call my dad if he was at work and I was at home, or vice versa, or I'd run into him in the powerplant and say, "Dad, where do I find this thing called the M-board? Where is it located?" And either he'd tell me where to go or he'd take me and show me where it is, or one of the other operators would do it.

"It was a great training program, and I learned Hoover from the ground up, so to speak. . . . a lot of people in the public utilities business . . . just don't learn that, you don't get that depth of knowledge and understanding of how a powerplant works. . . ."

It was a great training program, and I learned Hoover from the ground up, so to speak. It's unfortunate, I'm not sure that a lot of people in the public utilities business, unless you've grown up kind of through the ranks, you just don't learn that, you don't get that depth of knowledge and understanding of how a powerplant works.

Hoover Dam Came up During His Training at the Armed Forces Air Intelligence School

I recall when I was going to school here at the Armed Forces Air Intelligence School at Lowry, that one of our phases of training there was photometric comparison, viewing of stereometric pairs of photos. So one day the instructor paraded out a "How do you identify a powerplant?" for a targeting type of question, and lo and behold, he had stereometric pairs of overflight of Hoover Dam. And I just kind of chuckled to myself and let him hand them out, and I looked at it, mainly because I was more interested in looking at Hoover Dam in stereo, so to speak. It's not that I needed to know where anything was, because I already knew where it was. I recall him asking the class a question, "Well, how many switchyards are at Hoover Dam?" and the answer came back by probably everybody in the class of four or five, and the instructor said, "That's right."

I remember very vividly contradicting him. I said, "No, sir. You're absolutely *wrong*."

And he said, "Well, well, well, show me." And, of course, having walked through those switchyards, I knew exactly where they were. What he had failed to recognize is that there's three switchyards absolutely abutted to each other, and he was counting three as one. I sat there with him looking on the stereo viewer with me, and I was taking a pointer and saying, "Now, here's the perimeter fence for this one, and this is at this voltage, by the way, it's at 287 and a half thousand, and this next yard's at 230,000, and here's its perimeter fence, and this yard up here happens to be at 69,000." This was a case where the student taught the teacher.

It was a good learning experience from that aspect, that what you're looking at as a targeter, don't always be deceived by what you're looking at, because there may be more there than meets the eye. So, it was a good experience from that aspect.

Storey: The training, for instance, when they sent you out to the switchyards, were there people with you?

"When I first started until I learned the routine and what was expected, I always had somebody to take me along, show me what to do, what not to do. Never was I ever sent to do something that I wasn't well instructed and briefed on before I went out there. . . ."

Boyce: Generally speaking. When I first started until I learned the routine and what was expected, I always had somebody to take me along, show me what to do, what not to do. Never was I ever sent to do something that I wasn't well instructed and briefed on before I went out there. It just wasn't, "Here's a ring of keys. Go do your job." They did assign me to somebody that I literally shadowed for probably a week or so. As I moved into a new aspect of the job, then I'd always have that training. It might be only for a shift or two shifts, but certainly I had that.

". . . anytime a switching operation had to be accomplished or taking a piece, like a generator, out of service, always had either a senior shift foreman with me . . . or one of the senior dispatchers would come down. Because it was a learning experience for me, they would have me do the work, but, certainly, they were there to make sure that I did the operation correctly and didn't operate a piece of equipment that I shouldn't, a very exacting process. . . ."

The other thing that I did is that anytime a switching operation had to be accomplished or taking a piece, like a generator, out of service, always had either a senior shift foreman with me, *the* shift foreman for that day was with me, or one of the senior dispatchers would come down. Because it was a learning experience for me, they would have me do the work, but, certainly, they were there to make sure that I did the operation correctly and didn't operate a piece of equipment that I shouldn't, a very exacting process. It's part of the switching orders that we do today, that we train our operators today on, lock-out, tag-out procedures and all that. While it wasn't clear in my mind at that time why it was being done–and I've subsequently learned that in my career–certainly I had to demonstrate before I operated anything, you literally did a dry run, so to speak. You had to go and say, "This is the particular handle I'm going to touch. I'm going to move it to the left," or, "I'm going to move it to the right," or, "I'm going to cause it to be moved to an up position," or a down position or pulled or pushed or whatever the operation was going to be. I had to literally touch and talk through the whole process before any operation was ever done, and I had to get clearance. Not only was I talking to the person that was there with me, but I was on the phone with a dispatcher in the control room telling him exactly what I was doing. Of course, this is typical of our switching procedures that we *all* have to do in the powerplants today.

So without knowing what I was doing, the process, I *learned* the process, and so when I came on permanently with Reclamation and became involved with lock-out, tag-out procedures, switching orders, and things like that, going to a class and hearing about that, it wasn't a situation of just hearing about it, the theory of it; I'd actually performed it. I didn't maybe necessarily know that that's what I'd done at the time, but certainly, in retrospect, recognize that that's what I'd done. But extremely good learning process, again, a good foundation for the business that I've been laboring around in the last twenty-five years.

Storey: You talked about going and checking switches.

"You always checked to make sure a switch had functioned correctly and that the contacts had seated . . . A switch in this case is not a switch like a light switch; we're talking about a major switch that is opening or closing a circuit of 230,000 volts, and these are large copper contacts and pneumatic spring-operated equipment. . . ."

Boyce: You always checked to make sure a switch had functioned correctly and that the contacts had seated so that there was no chance of either vibration causing the contacts to separate, thereby causing arcing. Arcing, of course, creates heat. Heat creates failure, ultimately, in equipment. So always would look to make sure that

switch had closed. A switch in this case is not a switch like a light switch; we're talking about a major switch that is opening or closing a circuit of 230,000 volts, and these are large copper contacts and pneumatic spring-operated equipment.

". . . If you were in the switchyard and they were going to open a breaker or close a breaker, my job was (a), to be the eyes for the operator. . . . I was supposed to visually verify that that's in fact what did happen and that it was the particular piece of equipment that he thought he was operating did, in fact, operate and operate correctly . . ."

You had to make sure that they functioned correctly, and, quite frankly, you had to be sure that you were safely away from it when they did function in case something were to fail. If you were in the switchyard and they were going to open a breaker or close a breaker, my job was (a), to be the eyes for the operator. Even though I was hooked to him by telephone, he would tell me what he was going to do, and I was supposed to visually verify that that's in fact what did happen and that it was the particular piece of equipment that he thought he was operating did, in fact, operate and operate correctly, in that after it had operated, that it hadn't caused a gasket or a flange to–

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BEGIN SIDE 1, TAPE 2. AUGUST 14, 1997.

Storey: This is Brit Allan Storey with Harvey W. Boyce on August the 14th, 1997.

You were talking about being in the switchyards, the eyes of the operator.

"Of course, in our business, power revenue is what rings the cash register. That's what pays our projects off. So it was important to keep that electrical service in place, that it was reliable to our customers. . . ."

Boyce: Yes, being the eyes of the operator just to make sure that whatever electrical-mechanical function that was taking place in fact did take place correctly, that no damage to equipment occurred, that the equipment, when I left, was operating satisfactorily and that. Again, this is more the assurance for reliability of service, because if that equipment goes out of service, if it were to become damaged, malfunction, again, that becomes lost revenue ultimately. Of course, in our business, power revenue is what rings the cash register. That's what pays our projects off. So it was important to keep that electrical service in place, that it was reliable to our customers. It's no different than the inconvenience that you have when the local power company loses the delivery service to you. I mean, your refrigerator ceases to work, and you can't toast the toast, and you can't cook the eggs on the electric stove, or the air-conditioning goes out or the lights go out, and, God forbid, the television goes off. So it's all part of that process.

". . . power was being provided reliably and you could depend on it to be there. That, I guess, is the underpinning of all the checks and balances and the visual inspections and the recording of data, is because with that knowledge we have

gained over the years, certainly in designing and specifying equipment, how to build that type of reliability and stability into the power system. . . ."

While at the time I probably didn't recognize it to be that broad a scope, in retrospect, when you think about it, that's what I was doing. It was just another part of the check and balance in the system to make sure that, as the provider of electrical energy to the ultimate consumer, that power was being provided reliably and you could depend on it to be there. That, I guess, is the underpinning of all the checks and balances and the visual inspections and the recording of data, is because with that knowledge we have gained over the years, certainly in designing and specifying equipment, how to build that type of reliability and stability into the power system.

That's one of the things that we hear today when I talk with our customers. What is it that they expect of us? They expect dependability, that power is there when they need it to be there, that it's stable, it's not oscillating up and down, because voltage drops and spikes do cause damage, especially in the age of computers. Electrical equipment is very sensitive to changes in that voltage, and it could do serious damage to very expensive pieces of equipment. Hospital equipment comes to mind, X-ray equipment, things like that, *very intolerant* of deviation in the voltage supply.

So, it's incumbent upon us as the provider of major power support–we're the second largest supplier of electrical energy in the United States–we want that supply to be, obviously, very reliable, very stable, very dependable. It's interesting, now here I am, twenty-nine years later into the business, and I'm now understanding why all those things that I had to do, and some of them weren't necessarily pleasant, and out in the heat of the switchyard in the middle of August in southern Nevada is not necessarily a fun place to be, and the steel structures and the ladders I had to crawl up would get very hot sitting out there in the sun, and yet that was expected and it was demanded, and it had a purpose. Might not have been apparent to me at the time. Certainly it is today.

". . . I really feel sorry for people that come from college into the public utilities career pattern without any *real hands-on* experience, because they don't have the appreciation as to all the things that are behind the scenes in this business. . . ."

Again, I really feel sorry for people that come from college into the public utilities career pattern without any *real hands-on* experience, because they don't have the appreciation as to all the things that are behind the scenes in this business. To most of them, they think electric power is nothing more than turning on the light switch or plugging your computer in and turning it on. It's always *there*. But there's not that appreciation, at least that I have and others like me have, of why is that power always there? Why is that electricity there when you turn the light switch, and what has caused it not to be there when it goes out? To me, it's always been intriguing, and so I feel comfortable in knowing all the aspects of the business. I find it's even interesting, and I remember, as a youngster, quizzing my dad, because, again, his being an electrician and that, of course, you always think your father knows everything about whatever it is that he does, but driving down the highway, "Well,

Dad, what kind of transmission line is that, and what kind of voltage is that on it?" and, "Well, if it has eight insulators on it per span as opposed to two spans of eight insulators or three spans of eight insulators, or if it only has three insulators, what kind of voltage is that line carrying?" Probably 99.9 percent of the American population drive down alongside of a transmission line, whether it be high voltage or low voltage, and don't have a clue. But, to me, there is a reason. There is a formula that's associated with that type of a circuit, and it's interesting to me, where most people just take it for granted.

The power poles out there alongside the road or there is a substation, well, okay, so what? Well, to me, it's important. Is that a high-profile, a low-profile substation? Does it have reactor banks in it? Does it have capacitor banks associated with it? What type of circuit breakers? Are they oil circuit breakers? Are they air, pneumatic circuit breakers? Are they puffers [phonetic]? Are they--what? That's the type of thing that I've gained an appreciation for in learning this business kind of from the ground up. Most people wouldn't give it a second thought driving by. You probably wouldn't give it a second thought driving down the road.

Storey: No. I see all that stuff out there.

Boyce: It's just "all that stuff out there." That's right.

So it's been really a great experience, at least personally. I enjoy learning, and I enjoy learning more about our business. So I certainly feel I got a good, extremely good, foundation in the fundamentals. I've probably been taught Ohm's Law fifty-five times by various people, and I guess I can still probably figure it out, but if you ask me to sit down and work out an electrical problem like an electrical engineer would do, I don't have the foggiest idea, but at least I know where to go and who to ask now. And so I guess I've gained something from it.

Storey: These switches, I gather the operator could control them from the powerplant.

Switch Yards Today Are Operated Remotely, but They Used to Be Staffed

Boyce: Remotely, yes. They could be controlled remotely, or they could be controlled at the actual switch site. It's even more so today with technology advances. Most sites *are* remotely controlled from some central dispatch center. The breadth and distances of remote control has expanded just in *my* short career. I gather, in talking with my dad and with others, switchyards used to be manned, and, quite frankly, it's evident at Hoover and the Basic Magnesium switchyards fifteen miles from Hoover, they used to have manned shifts.

"My dad used to work at the control room at BMI,[10] away from Hoover. It's where Parker-Davis interconnects with southern Nevada–Parker-Davis Project. . . ."

10. Basic Magnesium, Inc., in Henderson, Nevada.

My dad used to work at the control room at BMI,[11] away from Hoover. It's where Parker-Davis interconnects with southern Nevada–Parker-Davis Project. I've been in that control building many a times when I worked for Colorado River Commission, because that's now a Colorado River Commission facility. Here's this three-, four-story building offices there that are never used. They're all abandoned. Still there. There's still stoves and refrigerators in those, that were there for the benefit of those operators that were working there three shifts a day.

"Most of those remote sites . . . of course, are being *built as* remote-operated sites. They're not being built as a manned station, which seemed to be the norm back in the forties . . ."

Most of those remote sites like that are still in existence now–the newer ones, of course, are being *built as* remote-operated sites. They're not being built as a manned station, which seemed to be the norm back in the forties and that time frame.

So, it's just the ability to send a signal from some dispatch center over some control circuit, whether it be microwave, as it is today, and now we're even getting into fiber optics to send those type of signals, or whether it be a radio-transmitted signal, whether it just be turning a switch that makes an electrical circuit change, the equipment, especially in these far outlying regions, is being more and more remotely operated.

"In the case of Hoover, more often than not, you were, again, the eyes, because the technology in those days, while the operator would see two little lamps, like a green and a red lamp, light up on the control board where the switch was that he was operating, indicating that the switch had opened or closed, he really didn't honestly know for a fact, unless somebody at the other end of the telephone said, 'Yes, that circuit is now closed,' or, 'Yes, that circuit is now open.'. . ."

That doesn't mean to say that it can't fail, and it does fail, even today. And when it fails today, then you have to send somebody out to inspect it, correct it, repair it, whatever the case may be. In the case of Hoover, more often than not, you were, again, the eyes, because the technology in those days, while the operator would see two little lamps, like a green and a red lamp, light up on the control board where the switch was that he was operating, indicating that the switch had opened or closed, he really didn't honestly know for a fact, unless somebody at the other end of the telephone said, "Yes, that circuit is now closed," or, "Yes, that circuit is now open."

An Incident at the Switchyard at Basic Magnesium

I remember not too many years ago, when I was working with Colorado River Commission, a situation where the dispatcher in Phoenix controlling circuit breakers in the Basic Magnesium industry's now-unmanned station indicated that the circuit breaker was open, was clear, and that had occurred during the night. I guess, as it was reconstructed, something, a sub-feeder of power in one of the underground vaults

11. Basic Magnesium, Inc., in Henderson, Nevada.

had shorted out to ground, and, of course, it caused a relay action, and that caused power to one of the titanium processing plants to drop off line. Well, that caused people to get called out from home to go see what had gone wrong, and here we had a number of people out there in those plants looking and talking to the dispatcher long distance. He's saying, "No, that circuit is perfectly okay now," without taking the time to send an individual over to the actual site where that circuit breaker really was, 300-odd miles away from where the dispatcher was, he's looking at his control board, and his indicator says everything's lovely. Looking at the control board at the BMI plant, which was a few hundred yards away from where the breaker actually was, they *all* appeared to be normal and clear.

So, when the operator in Phoenix closed the circuit, it literally exploded a protective device down where this circuit breaker actually was. It caused a direct fault of, I think it was 138,000 volts, literally blew a steel vault cover off of this, probably on the order of magnitude of six by six feet of steel plate went vertically in the air about thirty feet. Now, had an individual been walking over or standing by there, he could have easily been killed or certainly injured.

The fault caused such an immediate heating of the oil that the insulation, the porcelain insulator, exploded, went vertically in the air and all over the adjacent terrain, and the oil ignited, and there was a ball of flame about thirty feet in the air. So while remote operation is all well and good, it still doesn't take away from the fact that sometimes the indicators are not as they seem, and that's why it was necessary.

This had occurred over a four, five-hour period of time. They kept getting these faults, and they kept checking everything close at hand, in both control rooms, and everything appeared to be normal, and they had failed the first elementary process, and that is go visually inspect. It wasn't until they closed it about the third time that this thing had just had all it was going to take, and it was going to fail, causing the porcelain to explode. The oil had overheated, blew this manhole cover off the top of the vault. One of the plant managers who happened to be in his office, picking up the phone, said, "I don't know what you folks are doing, but whatever you're doing, you just sent a piece of steel flying through the air, and there's this huge ball of flame coming out of the ground." So here again, nevertheless, remote still has to have visual inspection at times. If it fails, you've got to fix it.

What "Open" and "Closed" Mean in Switches

Storey: Maybe I need a lesson. What does "open" and what does "closed" mean?

Boyce: Open and closed in a circuit means that–let's use a light switch in this room, for example. If the switch is closed, that means the circuit is complete and power can flow from the power source, the generator, if you will, through the switch, out the other side of the switch–actually not through the switch. It would come from the generation source into one side of the switch through the contacts of the switch, which are closed, physically in contact, one with another, out of the other side of the switch up through the light fixture and back to ground or back to the other side of the generator.

So, a circuit being open means that it's literally and physically there is air space between the two wires, the wires are not in direct contact, and therefore power can't flow. So that's why it's commonly called open or closed or red or green or whatever.

Storey: What's a relay action?

Explanation of a Relay Action

Boyce: A relay action is nothing more than a electrical-mechanical operation of a switch. A relay is nothing more than a device that senses something that tells it to take an action. The switches in this building, interestingly enough, for the light switches do not directly turn the light fixture on in most cases. They operate a relay in a panel remotely from where the light switch is on the wall, and if you flip the switch, you'll hear a click, not in the switch, you'll hear it in an adjacent room. What that is, is using a very low-voltage control circuit in the light switch here that causes this relay, which is nothing more than an electromagnetic device, that the control circuit energizes the magnet, causes the switch to move vertically or horizontally, whichever way, and as that switch moves, it is pulling with it the bigger contacts that are literally making the power source connection.

It's a very common practice to do that where you have extremely high voltages or high amperages involved in the electrical circuit, because a small light switch is not built to withstand that type of voltage and amperage. It would literally explode. It's just too heavy of a voltage and amperage to control it, so what you use is, you use a control circuit to move a bigger switch remotely away from the person operating it by energizing the switch using control voltages, which are generally very low voltage. It causes the bigger switch to function that is designed for the higher voltage and high amperage.

Storey: You mentioned earlier that they would code you, I think you said. What's that?

How Hoover Used "Codes" to Contact Workers in the Plant

Boyce: That's an interesting thing. I can't remember, I think my code was 21. This would be kind of the precessor to having the pagers that we now have, that you wear on your belt, that in order to find you somewhere in the powerplant–and recognize this is a major establishment–or in a switchyard, if someone needed to get hold of you, and there's telephones everywhere throughout the powerplant and the switchyards, they wouldn't necessarily know where you are. They can't physically see you. They're not expecting you to call home every five minutes, so to speak, so if they needed to contact you, what they would do is through a set of horns that were placed in the switchyards and on the various floors and galleries of the powerplant, they would, actually through the telephone system, set up a code call, which the telephone switching equipment would do the ringing, much like the old telephones would ring two short rings and then a long ring or whatever. It was no different, except it was being audibly transmitted through some type of a klaxon horn in the plant.

So when the code would start to ring, I would count the number of rings. It would ring two blasts of the horn and then stop for a moment and then one blast, and that was my signal that somebody was trying to reach me and I had a number to call–an access number, if you will–to call on the telephone. I'd be immediately connected with the other person on the other end of the line. Just kind of a precessor to call waiting, a feature that we have on our telephone system today, or to having a pager, like you carry a cell phone with you.

Storey: And then they would tell you what they wanted done or whatever?

Boyce: They would give me instruction to go to such and such a breaker or go meet the shift foreman and take him to do a switching operation, or what time is it that you're going to be going to the switchyard. When you get to the switchyard, go to such and such a switch, pick up the phone, call us. That type of thing.

Storey: And these things were all numbered so you knew?

"About the only people that really didn't have a code . . . was the control room operators, because there was always somebody in the control room. They were the nerve center, and so that was always manned. . . ."

Boyce: Everybody–not everybody, but every position that needed to be contacted had a code. The shift foreman had his code. About the only people that really didn't have a code that I recall being assigned to was the control room operators, because there was always somebody in the control room. They were the nerve center, and so that was always manned. There was always somebody in that room at all times.

Storey: For instance, when they say, "Go to the X switchyard, go to Switch Y," you knew *exactly* which switch that was?

Every Major Piece of Equipment Has a Unique Designation and Is Tracked on the Mimic Board or Computer

Boyce: Yes. Each switch, each breaker, each disconnect device all had a plate, a label plate, affixed to it, and if you were going to disconnect switch D62Y or whatever the number was, the number on that would tell you exactly where that thing was located. So I would generally get an instruction, "Go to the Arizona-Nevada yard, go to disconnect switch 3YT," or whatever it was, and that would not only would tell *me*, but all the control room mimic board, which is a huge board that literally shows schematically all of the switches, all of the lines, all of the various devices. They were all labeled down there. So somebody was down there literally watching on the mimic board what I was doing, and that is not unlike even with our computerized system today.

"The only thing that we've done is we've modernized the way we do it. We do it remotely, we do it through microwave, we do it through fiber optics. We don't have these big pegboard-type drawings . . . We now display that on a video screen that's sixteen feet wide and ten feet tall, which is nothing more than a

video projection of that same typical mimic board or schematic board. It's just displayed electronically now. . . ."

Each device on the computer screen has a label, and that label exactly matches a physical piece of equipment with that physical label on it somewhere in that yard or in that powerhouse or in that switchyard, and that's universally true. The only thing that we've done is we've modernized the way we do it. We do it remotely, we do it through microwave, we do it through fiber optics. We don't have these big pegboard-type drawings that took walls of control room with all of the devices labeled and identified. We now display that on a video screen that's sixteen feet wide and ten feet tall, which is nothing more than a video projection of that same typical mimic board or schematic board. It's just displayed electronically now.

When they do it today at Hoover or at Grand Coulee or wherever the dispatch center is, and the operator is looking at a computer monitor and he sees this schematic laid out on this screen, it's no different other than it's miniaturized now than what used to be done in these big control rooms with a lot of people physically going over and moving a peg or changing the color of a peg to indicate the circuit was now closed or it was now open, or this switch was grounding a piece of equipment so that it could be taken out of service and worked on safely.

Technology has not changed the way we do business; it's just changed how we do the business. The same symbology is still there. The same thing is still occurring, whether it's being done physically by hand with a person standing there or whether it's being done remotely by sending a computer command. The actual business still works the same way today. It's just the way we do our business is much more efficient, much more state of the art, takes less people to do it. We don't need to have as many operating, a crew of nine to operate a powerplant today. We can do it with two or three because of the technology. But that does not diminish the fact, and does not alter the fact, that the same functions are being accomplished, much like when I learned it by hand. They're still being done today; they're just being done differently.

Storey: Tell me some more about the roof.

Boyce: The powerhouse roof?

Storey: Yes.

The Powerhouse Roof

Boyce: The powerhouse roof is an interesting place. I guess the most impressionable thing I can remember about the powerhouse roof is (a), it's hot there in the summer–even at night. It was not at all uncommon to be on the powerhouse roof at four o'clock in the morning and literally take my shirt off because I was sweating so badly, because the canyon walls would absorb all the day's sun as the sun beat down on that wall. Of course, the dam is a concrete structure, and it would absorb heat also. But then, at

night, of course, it radiates that back out. I guess I liked to be on the roof at night because it was really beautiful.

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BEGIN SIDE 2, TAPE 2. AUGUST 14, 1997.

Storey: –well lighted at night.

You Were on the Roof to Inspect the Equipment, but You Could Also Pick up Coins Tossed There by the Tourists

Boyce: Well lighted at night, and there's large lighting fixtures there that create that picture of Hoover that we've all seen lit up at night, looking at the face of the dam. But I always found it interesting, you could walk on the roof, and the roof has a white, very white rock surface on it, small rock surface. You could see the reflection of the various mineral contents of that rock being picked up and highlighted by the lights. Of course, that also helped you find coins, too, because the coins would reflect light. So when you were walking along doing your inspections, you kind of kept one eye on the structure and the other eye on what you were walking on, because if you saw the glint of a thing reflecting back at you, you wanted to always go check it out. It might be a quarter; it might be a half a dollar; might be a silver dollar.

But it was an experience, and, of course, having stood on the top of the dam amongst the tourists and then looking over at the roof of the powerhouse and down onto the structure and seeing a worker down there walking around, "Gee, look at how small that person is down there," because you look, you know, very ant-like down there. It's always kind of a chuckle, "Gee, I wonder what they're doing down there." Well, of course, having worked down there, unless they were actually working in the structure, they were probably doing what I used to do, and that was walk around, make sure that there was no arcing, that the structures were there, that the insulators were not damaged, that rocks had not fallen off of the canyon wall and penetrated the roof. You say, well, rocks wouldn't go through that roof. True, they wouldn't. That's a very well-constructed roof.

Storey: It's literally armored.

The Powerhouse Roof at Hoover Is Armored to Protect Against Rockfall

Boyce: It's literally armored. It's a composite roof of girder steel and concrete and composite layers of tar and rock and that.

But there was an occasion that occurred actually while I was at school, between my two summers of working there, when a piece of the canyon wall sloughed off on the Arizona side and literally went down onto the roof, damaging the roof structure, lightning arresters, the insulator switch gear where it landed. The order of magnitude, I think, was somewhere around nineteen or twenty ton of rock came down off that canyon wall, and it made quite a dent in that composite wall. They literally had to get up there with jackhammers and break that rock apart and

take it off of there, that hunk of the canyon wall, break it up into manageable sizes to lift it off with cranes.

They literally put a crane onto the roof of the powerhouse there to move–of course, the damaged structure, that's all steel. I can't think of the–it's not stainless steel, it's–well, now it's more aluminum. It's extruded aluminum, but then it was galvanized steel, steel structure. I mean, these are major pieces of steel, and there are big bolts that hook them together. You don't pick that up by hand. You pick it up with a crane, and you set it in place, and you put those bolts in, and they're put in with impact hammers, impact wrenches to tighten it, because this is major structural steel that we're talking about.

So, you had to put some equipment up there to get it off, and then they had to go in and patch the roof where it had actually gouged out part of the roof, but it never bent any of the girder steel. Dust had settled up within the powerhouse. I mean, a lot of dust came off there, because it just accumulated on the girders there of the roof structure. But it didn't actually penetrate into the powerhouse, but it certainly gouged a big hole into the actual roofing, and that had to all be repaired and replaced.

". . . all those [Hoover] generators could routinely, and were routinely, operated at 115 percent of nameplate. . . ."

So, it's a major feat that Hoover withstood that type of–of course, we all say that Hoover was constructed hell for stout, and that's evident by the original equipment. The generators were–I think nameplate capacity was somewhere in the order of magnitude of around 1,100 megawatts of capacity. Well, all those generators could routinely, and were routinely, operated at 115 percent of nameplate. So instead of getting 85 megawatts out of that generator, they were able to get 100 megawatts out of that generator.

Nowadays Hoover's Generators Cannot Produce More Then 100 Percent

The irony of that is, of course, maybe it was over-engineering, and maybe we were guilty of over-engineering, when those drawings and equipment was originally spec'ed back in the 1930s, but the irony of that is that when Hoover was upgraded and the generating equipment was uprated in the 1983-1989 timeframe, and those generators are now, because of the technology of windings and insulation and excitation, changes in the design of the water wheel and things like that, we were able to gain efficiencies to where that generator now is nameplated at 100 megawatts. But the strange part of it is, the generator will only produce 100 megawatts today, too. You can't run it at 115 or 105 percent even of nameplate. It is what you get.

So, we were able to take a plant that was 1,100-plus nameplate megawatts of capacity, operate it normally at 1,345 megawatts at 115 percent of nameplate, and all we can do today out of those generators is get that 1,345 plus the additional efficiencies that we gained by uprating the units. So, is that good? Is that bad? I don't know what that says for technology, other than when we originally–"we" being Reclamation, the designers back when Hoover was designed and working with the

engineers at that period of time–and I guess that's a high compliment, in *my* mind, to those people, because they designed something that not only would it operate the way it was designed and at the levels that it was designed for, it would do *more* than that. It would go the extra mile, and not do it just for a short burst of time, but for *years* at a time.

So, while there's an efficiency gain in technology, I'm not so sure that we gained from a reliability sense from the original equipment. Obviously we've gained a lot of things, but we don't have that insurance policy there that says that piece of equipment is going to run routinely and dependably day in and day out, year in and year out, like we can depend on that equipment today. There's a tradeoff. I mean, there's an economy of scale that's gained or lost in technology advances, and I think Hoover has been a very good test bed to demonstrate that.

We're having our fair share of problems with the new technology, the new efficiencies that we gained at Hoover. I guess time will tell whether or not the increased technology and new devices and the new way that we're operating at Hoover will tell us whether or not it's any more reliable, any more dependable. You can't make that judgment call based on a year's worth of experience or a day's worth of experience. Those are the type of experiences that you have to judge twenty years of time against twenty years of time. We'll gain that knowledge. Much like we gained the knowledge in the first fifty years of Hoover's life, we'll gain that knowledge in the next twenty or thirty years of life.

"We will build the next generation [of equipment] not only on our first fifty years [of data], but on our next twenty or next thirty or next forty years of experience. . . ."

Again, it goes back to the necessity of all of those readings that I took by hand, which are now being done by computer monitoring. All of that technology, of course, is knowledge, and knowledge is what we will design the *next* generation of equipment from and the next generation of circuit breakers from, is how dependable was this particular device that we have *now* built, based on the history we learned fifty years ago. We will build the next generation not only on our first fifty years, but on our next twenty or next thirty or next forty years of experience. I mean, that's just how we evolve in the industry. It doesn't matter whether it's power generation, water transportation, or building General Motors cars. We all learn from our experiences, and the technology *gains* that we have achieved are based on that.

Storey: What else did you do as a relief operator?

Boyce: Oh, gee. Got a chance to walk around a lot, got a chance to *clean* equipment a lot, got a chance to *learn* a lot. I guess, more than anything, got a chance to meet and work with a lot of really fabulous people, people that, yes, I knew them casually, growing up, living in a small town and that, but then you got really to develop interpersonal skills and relationships with these people, got to know them better, from being just a casual acquaintance to being, you know, a colleague, a fellow worker, supervisor-

employee-type relationship. So I guess I learned a lot of those interactive personal skills.

I got to *observe* a lot of people, and, I guess, being somewhat a student of management philosophies and technology, methodologies, I have leaned on that. I've gone back to those experiences and those relationships to formulate my own personal skills and managerial methods, *traits* that I've developed over the years. So, I guess from that aspect, I learned quite a bit, or at least I used it as a learning experience to develop and to draw upon.

Storey: Must have been quite a change when you came back, and you went into the finance office.

". . . starting off in my finance experience as a power accountant, I then stepped to the other side, to become the *user* of those very meter readings that I used to take. It now started to add another dimension, another piece of the puzzle in the whole scheme of our business. . . ."

Boyce: It was, but there, again, of course, starting off in my finance experience as a power accountant, I then stepped to the other side, to become the *user* of those very meter readings that I used to take. It now started to add another dimension, another piece of the puzzle in the whole scheme of our business.

"From generation to distribution; to meter readings to bills being prepared; bills being sent out; transactions entered into our accounting system that reflects income in dollars received and debt being repaid; contracts being written; contract terms being required as to how bills will be rendered; what will be included in the bill; what will make up the charges that the ultimate consumer *pays* for power; taking *that* knowledge and where that data is recorded into our financial system, now looking at it from my present aspect of, what is our cost of producing power? How do I report to a plant manager what his maintenance cost in a per-kilowatt-hour per-kilowatt-unit? . . ."

From generation to distribution; to meter readings to bills being prepared; bills being sent out; transactions entered into our accounting system that reflects income in dollars received and debt being repaid; contracts being written; contract terms being required as to how bills will be rendered; what will be included in the bill; what will make up the charges that the ultimate consumer *pays* for power; taking *that* knowledge and where that data is recorded into our financial system, now looking at it from my present aspect of, what is our cost of producing power? How do I report to a plant manager what his maintenance cost in a per-kilowatt-hour per-kilowatt-unit? What does it cost him to do that? Is he doing it efficiently? Are his maintenance people working efficiently? Are his operators working efficiently?

All of this *now* has provided me, every aspect of this career, and it's kind of ironic, I guess, that I've now, I guess, worked on the whole gamut of the cycle, from the raw generation, the raw data, to now using that data to reflect back and to provide measurement skills.

"We basically operated for ninety-two years without ever knowing, *really knowing*, on a per-unit, per-powerplant basis, what it cost to operate or to maintain. . . ."

We basically operated for ninety-two years without ever knowing, *really knowing*, on a per-unit, per-powerplant basis, what it cost to operate or to maintain. And now our customers, as they are having to sharpen their pencils, as budget money gets tighter, we're having to be reactive to our customers and be responsive to our customers. Until 1994-95 time frame with the national performance requirements that we have in the power lab and the challenge that I was given, that, "Well, we just don't know. We don't know how to figure it out." I said, "It's not that difficult. It's an easy problem to solve."

Of course, the gauntlet was laid down, and I foolishly picked it up and said, "Well, yes, that's easy to do that." Now, what does that say? Does that say that I walk on water, and I'm an egotistical maniac, or does it say that I have, through my experience, my personal experience, and the training that I received both at Hoover, both in college, both in walking around the powerplant reading meters, doing power billing, developing power rates, dealing with our customers in [the] rate-setting process over the last twenty-five-odd years, did that make me any super employee? No. It just gave me *all* of the various aspects of this business, and I've been very fortunate.

"Probably most people in the business don't have that whole spectrum . . . of power generation to ultimate consumption, to bringing the cycle back to saying, well, how do we do our business better now? . . . that's now what I'm embarked on, is taking all of that knowledge that I received and all of those various pieces of the puzzle and sorting them out, putting them on the table in the form of some report that I can show to management, that we can show to our customers and say, 'This is what it costs us at Grand Coulee for *each* kilowatt hour of operation or each kilowatt at capacity of maintenance.' We can *now* definitively tell people, 'Here's what we pay in overheads. Here's what we pay in administrative cost. Here's what we pay in benefits, and here's what we pay for *actual* supervision of the operation or the actual supervision of maintenance. or what it literally costs us' . . ."

Probably most people in the business don't have that whole spectrum, kind of from womb to tomb, so to speak, of power generation to ultimate consumption, to bringing the cycle back to saying, well, how do we do our business better now? And, of course, that's now what I'm embarked on, is taking all of that knowledge that I received and all of those various pieces of the puzzle and sorting them out, putting them on the table in the form of some report that I can show to management, that we can show to our customers and say, "This is what it costs us at Grand Coulee for *each* kilowatt hour of operation or each kilowatt at capacity of maintenance." We can *now* definitively tell people, "Here's what we pay in overheads. Here's what we pay in administrative cost. Here's what we pay in benefits, and here's what we pay for *actual* supervision of the operation or the actual supervision of maintenance. or what it literally costs us to provide supplies to do maintenance–pencils, papers, grease,

lubrication, tools, insulators, widgets, whatever they may be, to fix a broken part, a broken piece of equipment." All of this, we are now finally bringing this all back together into one report that we can sit down and say, "This is how it costs us to do business."

"I happened to be the one person at the point in time when the question was asked, and I had enough *ego* to say, 'Well, I know how to do that. I know all the pieces of the puzzle, not what they are, but where to go *find* them.'. . ."

Now, could anybody do that? Sure. But I guess I happened to be the one person at the point in time when the question was asked, and I had enough *ego* to say, "Well, I know how to do that. I know all the pieces of the puzzle, not what they are, but where to go *find* them." This is not a twenty-five piece-puzzle that we're playing with here. This is a myriad of pieces. I wouldn't even know how many pieces of data, when we put it in computer terms, nine megabytes of financial data that we analyzed; hours of time; literally hundreds and maybe even thousands of hours of people's time; report writing; analysis; looking at variations in data. Why did this go up and that went down?

All the questions that we need to ask ourself in doing our business and being responsive to the American people, to the taxpayer, to the *ratepayer*, to our supervisors, to the plant manager out there that has to answer those questions to his constituency, he relies on us to do that. Well, we haven't done it in the past, and we haven't needed to do it in the past. We maybe should have done it in the past, but the demand has not been put upon us until *now*. As we are becoming a more responsive government, that technology is now available.

As I said, I just happened to be the person at the point in time when the question was asked, and had enough ego to say, "Well, I think I can solve that problem." So it's been an interesting aspect, at least my career perspective, to start off out in the switchyard walking around, reading a meter, having no idea *what* in the world that was going to be used for, taking it down, handing it off to somebody who did something with it, filed it away, recorded it on another piece of paper which went to another piece of paper, which ultimately got added together with a whole bunch of other numbers that became a power bill which went out to the customer who charged rates to you and I at our homes, got money from you and I. They brought that money together, combined with the other people. They send a check to the government. The government uses that money to pay yours and my salary and to build dams and to maintain dams and powerplants and waterways and pay back to the American taxpayer the money that was advanced out of Treasury originally to build Hoover Dam, to build Parker and Davis dam[s].

Hoover and Davis Dams Were Paid off When He Was Overseeing Rate-setting at Western Area Power Administration

I guess I'm kind of egotistical enough to say that at least on my watch, when I was director of marketing and rates at Western and overseeing rate-setting for Hoover and overseeing the development of the new methodology and the new regulations,

where I had an integral and intimate responsibility not only to cause them to be written, to write them, to work with the lawyers, to work with the operational people to make sure that the words said what we wanted them to say, to negotiate it with our customers, that they were *willing* to contract with us, to pay according to the way these words were written, to operate and sell power the way we sell power out of Hoover and Parker-Davis, but even to be there when the dollars of revenue were collected, to stand up and say, very proudly say, that *I* was there and it was on my watch when Parker and Davis Dam were *paid* for, literally paid off. All those millions of dollars are *paid* for. When Hoover's original construction cost was paid for, that occurred on my watch. I guess that's one of those things that I'll be always proud of.

I know Mr. Ely was proud of the fact that he had written the 1941 regulations. Now, did he write them by himself? Of course not. But he was the one that is generally attributable by all of us as being the focal point, and I guess I kind of look at myself in that aspect, that it was at least *my* responsibility to see that those new regulations were written and to see that those power rates were set, and to be there when those debts were repaid. And they were repaid and paid on time and paid with the appropriate interest. I guess that's an experience that I guess I'm going to always be proud of and be happy to tell my grandkids, "Well, this is what Grandpa did."

Storey: Well, good. Once again, two hours have flown away.

Boyce: Gee. We have such a good time this morning.

Storey: And tomorrow we can take another step toward getting into all of this. I'd like to ask you again whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Boyce: Yeah.

Storey: Good. Thank you very much.

END SIDE 2, TAPE 2. AUGUST 14, 1997.
BEGIN TAPE 1, SIDE 1. AUGUST 28, 1997.

Storey: This is Brit Alan Storey, Senior historian of the Bureau of Reclamation, interviewing Harvey W[alter] Boyce on August the 28th, 1997, at about nine o'clock in the morning, in Building 67 on the Denver Federal Center. This is tape one.

Last time, we'd about gotten to the point where you were hired by the Lower Colorado Regional Office. Let's see, at that time it would have been Region 3, is it?

Boyce: Region 3.

Storey: Why don't you tell me about how that happened.

As Medical Retirement from the Navy Approached He Began to Send Applications and Résumés to Prospective Employers

Boyce: Okay. After being medically retired from the Navy in October of 1971, we moved back to Boulder City from San Diego, California, and it was during that time, or actually prior to my actually getting out of the Navy, I had started circulating job applications, resumes, etcetera, and I put in an application with the Boulder Canyon Project to become a guide. I also had submitted applications to go to work out at Nellis Air Force Base in the budget and finance accounting shop there, and had an application in with the Park Service to go on as a park ranger.

During that time, I saw an advertisement for a–I'm trying to remember exactly what the title was, but basically it was like a junior Federal executive position. I don't know whether it was a pilot program that they were doing, but it was in lower management, I guess trying to–the very entry level of middle management type or maybe even beginning management levels. But anyway, I did make contact with a friend of mine, Dale Imlay, who I knew worked at Boulder City, he's finance officer of Region 3, and subsequently talked with a man by the name of Albert Hartley [phonetic], who was the chief of fiscal accounting at that time at LC [Lower Colorado] Region. He explained to me what I needed to do and what I needed to file, what papers I needed to file, and [I] did so.

At that time, I did it through not only the regional office, but at that time O-P-M [Office of Personnel Management] had satellite offices, with one of them being in Las Vegas, so I had basically submitted *all* my applications through that office. I was subsequently asked to come in for an interview with a fellow by the name of [George] Johnson, who was the regional finance officer–I can't think of his first name right now– and Al Hartley, just basically to go over my background, have them tell me what the work would entail, etcetera I later found out the Dale Imlay was in the Yuma office at that particular instant in time.

"So within forty-eight hours, I had an offer . . . to come to work for Reclamation in the finance area, be at a GS-4 accounting technician level. I was in a quandary right then, because I was sitting number one on the list for the guides, which started at a GS-6. . . ."

It was George Johnson; I just remembered his name. George Johnson called Dale there in the Yuma office and spoke to him about me, and Dale, as I've been told, basically said, "I could use him. Please initiate the hiring process." So within forty-eight hours, I had an offer, at least verbal offer, to come to work for Reclamation in the finance area, be at a GS-4 accounting technician level.

I was in a quandary right then, because I was sitting number one on the list for the guides, which started at a GS-6. The irony of the whole thing was, this was during one of–I believe it was [Richard M.] Nixon's administration's Federal hiring freezes. So while I sat number one on three different lists, nobody could make me an offer until after the first of January, and I believe it was actually closer to March

before that hiring freeze was lifted. As soon as it was lifted, I was immediately contacted by LC Region to accept this job, and did so.

The irony of it is that within twenty-four hours of my showing up at LC Region finance office, I had offers from the Guide Service, from the Park Service, and from Nellis Air Force Base, all of which I turned down, mainly because I felt that there was a better future, from a longevity perspective, in working in finance. I didn't feel *uncomfortable* working in finance, because, as I mentioned earlier, I had started off in my college career as majoring in accounting, so I certainly had the fundamental accounting skills necessary to qualify for the job.

". . . I basically was on the ground floor when the LC Region began converting from the hand accounting process that was being used then, to the first automated accounting system that Reclamation went into, which was the FAST System . . ."

While I was working there in that capacity, I basically was on the ground floor when the LC Region began converting from the hand accounting process that was being used then, to the first automated accounting system that Reclamation went into, which was the FAST System, F-A-S-T, which stands for Financial Accounting System on Tape.

Coded All the Accounts During the Automation Process

My particular function in that effort was to literally code all of the accounts, all the cost accounts for all the LC Region projects, and see that they were keypunched and sorted and properly identified to their correct general ledgers. So that was a fairly exhaustive process, took a number of weeks, I think probably even months, as we brought that system up and got it de-bugged and implemented.

Storey: What were the kinds of problems you had?

". . . accounts that would have a conflicting number, that while it was all right to have duplicate numbers when they were on different accounting sheets, manual sheets, you could deal with it that way, but on a computer, of course, duplicate numbers cause it to see the same thing, and one piece of data may be lost in favor of another. So we had to make sure that we took all those *old hand* duplicate numbers and assigned them new numbers . . ."

Boyce: Either accounts that would have a conflicting number, that while it was all right to have duplicate numbers when they were on different accounting sheets, manual sheets, you could deal with it that way, but on a computer, of course, duplicate numbers cause it to see the same thing, and one piece of data may be lost in favor of another. So we had to make sure that we took all those *old hand* duplicate numbers and assigned them new numbers, made sure that they fit within the numbering scheme that was being used for that particular account and that particular project, and also to assure that there was some conformity of accounts throughout *all* the projects within the region, and then ultimately through all the projects throughout

Reclamation. So, a lot of that was just verifying that we had correctly identified the hand ledger sheets and the hand accounts into the automated system.

Computer Equipment That Was Available for Automation of the Accounting Systems

And then you'd also have keypunch errors, sorting errors. Back then, we didn't have the luxury of the personal computer and the laptops that we do today. We had the *old* IBM punchcard system and literally had to wire the sort boards on the collators. Very archaic. I mean, it was the beginning of the way we do the data processing. It was not foreign equipment to me, because I had been exposed to it and had worked with it pretty intimately in the Navy, because the Navy had some of the prototype of the new IBM card-sorters. The intelligence system that I worked with, which was an automated system, relied heavily on IBM equipment, so it was all familiar equipment to me, and I certainly understood how it worked and the basic principles behind it.

At That Time the Federal Fiscal Year Closed June 30

But making sure that we accounted for all of the data that had been kept on hand ledgers [it] was important that we made sure it was all there so that, when we closed that fiscal year out, which had been fiscal year '72, I believe–in that period of time, fiscal years closed on June 30th.

Hoover Dam Had its Own Accounting Year–called an Operating Year from June 1 to May 31

The *uniqueness* of LC Region is because Boulder Canyon Project or Hoover Dam had its *own* separate accounting year, which was called an operating year, that literally ran from June 1st to May 31st. So when we did a fiscal year end closure, we literally did a operating year closure one month before the fiscal year closure just for Hoover. Then we had to reopen it for one month so that it looked like all of the rest of the region, as far as the fiscal year, and then close it again on a fiscal year basis.

". . . in the case of Hoover, we *literally* did three year-end closures. We did an operating year, which was June 1 to May 31st. We did a fiscal year, which was July 1 to June 30th, and then we did a calendar year, which was January 1 to December 31. . . ."

So, in the case of Hoover, we *literally* did three year-end closures. We did an operating year, which was June 1 to May 31st. We did a fiscal year, which was July 1 to June 30th, and then we did a calendar year, which was January 1 to December 31.

Storey: Why?

". . . it's *fascinating* that people had the foresight and the thought process to project into the future the things that they would need in order to close out a fifty-

year contract period, which Hoover, of course, did on May 31st of 1987. The first fifty-year power contracts terminated . . . So, the books actually closed fairly easily on May 31 of '87 because of that foresight on the part of the people that designed the hand accounting system, which was later converted to the automated system. . . ."

Boyce: This was all part of the contractual arrangements that had been written back in the late 1930s, early '40s. Hoover had a very unique and very specific accounting system identified with it. It was kind of the prototype to the way we do a lot of our power accounting. It was very well-documented, well-thought out. Looking at the old ledgers and the old procedures back then, it's *fascinating* that people had the foresight and the thought process to project into the future the things that they would need in order to close out a fifty-year contract period, which Hoover, of course, did on May 31st of 1987. The first fifty-year power contracts terminated, and I was there when *that* happened. So, the books actually closed fairly *easily* on May 31 of '87 because of that foresight on the part of the people that designed the hand accounting system, which was later converted to the automated system.

Storey: So that operating system year had to do with the contract?

Boyce: Yes. The contracts, the fifty-year power contracts for Hoover, were initiated on June 1 of 1937 and ran through the end of May 31, 1987.

Storey: So that was an accounting in order to deal with the contract.

Boyce: That was just a separate accounting process specifically to deal with *that* contract, and there were obligations of Reclamation to the Congress to report annually, much like some of the other projects. CRSP, Colorado River Storage Project, and Central Arizona Project come to mind. Congress required specific reports, and so we had to develop those reports according to that accounting. Timing periods had to be consistent with those report requirements as well as the contract requirements.

Storey: So then the fiscal year, that would have been July through June.

Boyce: Right.

Storey: That was for Federal budget purposes?

Due to Accounting Cycles, the Accounting Staff Began to Work Weekends and Overtime about May 1

Boyce: Federal budget purposes, and all other general Reclamation Fund projects closed on that. So, yes, for budgeting, appropriations, fund transfers, all those things that had to be done to satisfy OMB [Office of Management and Budget] and GAO [General Accounting Office] and everybody else, and Treasury, as far as the Federal accounting cycle, all occurred as of June 30th. And routinely, I mean, we would start working weekends, overtime, probably about May 1, because of closing out the operating year for Hoover, transit right on through June entirely. Of course, all of

this is being done by *hand*, and the year, of course, that I started, we were doing it not only by hand, but we were doing it by automated system, so we were literally just–

Storey: By FAST?

Boyce: By the FAST system, which was more akin to being known as the slow system because it just seemed like it took an eternal length of time. That's not an indictment of the system. It's probably more of an indictment of a new system being learned by the staff there and having to get all that conversion work from the hand process to an automated process. So, the finance group *literally* were working seven-day weeks and overtime.

Many a time, I remember where one of the wives would come up, and about three or four o'clock in the morning, we'd be cooking breakfast while we were doing our accounting and closing out the books because we'd worked all night long. I remember many a time going home when the sun was coming up on a Saturday or Sunday, having spent the better part of thirty-six hours in the office just getting through this process.

". . . Damboree Days on the Fourth of July, we would be working . . . and our office was about two blocks from where the parade route would go . . . When the parade was to go, we'd break long enough to go down and watch the parade, then we'd go right back and hit it again. So Fourth of July, for us, during that first couple-, three- years as it got totally converted over to the FAST system and all of the reconciling done, we literally worked right through the Fourth of July holidays with not even batting an eye. . . ."

The other thing that was interesting, and this goes back to our discussion about the Damboree Days on the Fourth of July, we would be working the Fourth of July, and our office was about two blocks from where the parade route would go, so we'd be in working. When the parade was to go, we'd break long enough to go down and watch the parade, then we'd go right back and hit it again. So Fourth of July, for us, during that first couple-, three- years as it got totally converted over to the FAST system and all of the reconciling done, we literally worked right through the Fourth of July holidays with not even batting an eye.

While Converting to the Automated FAST System, the Region Also Decided to Consolidate All Finance Functions out of Field Offices into the Region

The other thing that was *occurring* at that time, not only were we converting from a hand system to the automated system, or quasi-automated system, is the region had made the determination that it would be in the best interest [of Reclamation] for the automated system to bring all of the outlying finance offices from each of the projects into and consolidate them with the regional finance office. So, there was a finance office staffed by a number of people in the Phoenix district office at that time. There was another office at the Arizona projects office, which was the construction office for Central Arizona Project. There was an office at Hoover, although the Hoover accountant and budget person was principally located in the Lower Colorado

regional office, there also was *staff* actually on site at Hoover that were finance people, so we had a coordination effort there. And then, of course, the Yuma projects were all consolidated within the Yuma Project office down there, so we had that group of accountants to deal with.

"So I guess we just decided to eat the cow all at one bite. We brought everything into the region from the outlying offices. We converted from a hand system to an automated system and did *all* that all at one fell swoop. . . ."

So I guess we just decided to eat the cow all at one bite. We brought everything into the region from the outlying offices. We converted from a hand system to an automated system and did *all* that all at one fell swoop. So it probably took us maybe a little longer than the average region would have taken. It was an interesting process, needless to say.

"It was awhile before we were literally convinced and assured that we had correctly converted everything and that it matched up account for account, and that's why we had to do both the hand closure as well as the automated closure, in order to make sure that the books really were in balance. . . ."

It was awhile before we were literally convinced and assured that we had correctly converted everything and that it matched up account for account, and that's why we had to do both the hand closure as well as the automated closure, in order to make sure that the books really were in balance.

". . . old guard of employees in the finance office had been doing it under a hand system, so, obviously, they were more assured of the accuracy of the hand system, and they were all skeptical of the new accounting system. So, a lot of the old time[r]s had to learn new tricks, and, quite frankly, it was the catalyst, I think, that caused a number of people that were kind of on the borderline of whether they should retire or stay on, and decided they didn't want to learn new tricks and didn't want to learn a new way to do business, and so a number of them took their first opportunity to retire . . ."

Of course, the old guard of employees in the finance office had been doing it under a hand system, so, obviously, they were more assured of the accuracy of the hand system, and they were all skeptical of the new accounting system. So, a lot of the old time[r]s had to learn new tricks, and, quite frankly, it was the catalyst, I think, that caused a number of people that were kind of on the borderline of whether they should retire or stay on, and decided they didn't want to learn new tricks and didn't want to learn a new way to do business, and so a number of them took their first opportunity to retire and did so.

"So, a lot of the institutional knowledge, financial institutional knowledge at LC Region, probably walked out the door over the span of about two years . . . leaving it to the younger generation . . . We became the old hands, and we were very green as far as this new accounting system, but we learned with it, and we got very proficient with it. . . ."

So, a lot of the institutional knowledge, financial institutional knowledge at LC Region, probably walked out the door over the span of about two years during that period of time, leaving it to the younger generation, my generation, which was the group of people that Dale Imlay, Jack Pong, myself, Steve Aginiga, and others that came up more in my age group. We became the old hands, and we were very green as far as this new accounting system, but we learned with it, and we got very proficient with it.

Storey: The third system, the calendar year system, what was that for?

Calendar Year Accounting Was Necessary for Outside Reporting Bureaus and Agencies

Boyce: The calendar year was required for outside reporting agencies. Some of the other associative-type utility councils that we have to deal with, like W-S-C-C, Western States Coordinating Council, the Federal Power Commission, now Federal Energy Regulatory Commission, a lot of those entities ~~had~~, because they dealt with the private sector and not the Federal sector predominantly, they were on a normal calendar year basis with the private, non-Federal power utilities. So they were trying to make us try to conform to that industry, even though we weren't really a retail generator, as far as that's concerned, because we still were selling bulk power to other entities who were the ultimate distributors. But because of our relationship with those entities, *their* being on a calendar year, it was important for them to match up the transactions that they were incurring with us on a calendar year basis so that they could verify that the amounts of energy and dollars associated with energy and capacity that we sold to them matched up with their records. So it was more of a convenience for them and more of a courtesy to them, but, nevertheless, there were some agencies that we had to report to that did require a calendar year report.

Now the Automated Accounting System Makes it Easy to Do Year-end Closings on a Variety of Dates

Most of that, I believe, has pretty much gone away. There are still some entities that deal on a calendar year basis, and under the new automated processing, it's no big thing to identify how you're going to pull data out of a database and report it. So whether you do it on a fiscal year or calendar year, semi-annual year, I mean, it's a piece of cake. But back then, when you were doing it by hand or quasi by hand, it was a more laborious process, very labor-intensive.

Describing the Pre-automation Accounting Process

Storey: The hand process, could you describe for me what it involved? Let me tell you the reason I'm asking this. I have this vision of this huge room with *all* of these shelves in it *stuffed* with ledger books and people scurrying around, going from ledger to ledger and putting it down on their high stools, on their counter, and scribbling something, putting something in. Tell me what it was really like.

Storey: Well, your description is not that far off, quite frankly. An interesting note is that at one time–I'm sure they're still somewhere in the Lower Colorado Region–I had access to, and would, just for entertainment value more than anything, go in and look at the original handwritten ledgers and accounting records from Hoover from the 1930s on. This was back literally in the green eyeshade, almost the quill-pen era, and these documents were literally a work of art, beautiful penmanship, very script-oriented, very stylized recording, very exacting work, really a testament to the people back in the mid-thirties and to the forties and on up into the fifties, the way that those books were kept by hand. They were just beautiful work, and more often than not, they were done on that tissue-fine accounting paper with literally ink from an ink pen, not a ballpoint. So, it was very exacting work and meticulous work.

But getting to the idea of shelves of ledgers, in reality there were. We had numerous file cabinets, obviously. We had a *vault* where all these records were safeguarded from fire and water damage. It was secured every night, locked up just like a bank. We had bank posting machines, the old N-C-R [National Cash Register] bank posting machines, much like they used in the banks to do your own personal business. You'd put a ledger sheet in, and you'd have to post it, and basically by your entering the last balance on the sheet, then doing the transaction, it would print the new balance so that it would give you a running balance.

I learned to use that machine. It literally was probably on the–you sat at it probably about forty inches wide, left to right, probably stood about thirty-six to forty inches, and was maybe twenty-four inches deep, maybe thirty inches deep, heavy machine, very cumbersome, very noisy. When the carriage moved on it, you didn't want to be standing next to it, because it *would* hurt you. It was a heavy carriage, big rollers. They had to be extremely wide to take the wide ledger sheets. These ledger sheets were in the hard-covered maybe like quarter-inch covered binders with the binding post on one end. They were probably eleven inches by, I would guess, twenty-four to thirty inches, lined columnar accounting sheets, single sheets. You had to open up the binder and put them on the binding post and then seal the binder back up again.

We had literally tubs of like a small file cabinet, but the top would lift off of it, and here were all of the ledger sheets in file folders or in divider folders. You'd pull the tub over to the posting machine, and you'd take one sheet at a time, and you'd do all the transaction on it, put it away, and move on to the next one.

Watching some of the ladies that had been doing it for a number of years, they'd get very fast on it. It took me a long time, but they could sit and post out a tub of ledgers probably in an eight-hour shift. It would take me probably two eight-hour shifts if I had to post them all.

The other thing that was interesting is that all of the cost accounting records had its own separate tubs of ledger sheets. The fiscal accounting section had its own set of ledger sheets, and the vouchers, the people that examined all the vouchers–

END SIDE 1, TAPE 1. AUGUST 28, 1997.

BEGIN SIDE 2, TAPE 1. AUGUST 28, 1997.

Storey: –travel vouchers or–

Boyce: –or journal vouchers or whatever that they were doing the various transactions on, *all* of these people had their own sets of tubs of ledger sheets. So, to automate this, we had to merge all of the ledger sheets together, as one supports the next level of the accounting system up, so it really required a great deal of coordination to make sure that all the subaccounts balance to the main accounts, and the main accounts balance to the general ledgers themselves, and then all the general ledgers that made up the trial balance, that they all stayed in balance.

So, it was an *exhausting* process, and it required a *great deal* of coordination amongst the senior staff members there to make sure that each of their respective areas of expertise knitted together with the others to bring the books to a successful closure. So, doing that by hand is an exhausting process in itself. Now doing a parallel effort, again with the same people, recording all this data and then getting all the errors out of it to make sure that it's still in sync with the hand record, really was an exacting process. And that's, of course, why we spent a lot of time doing things like that.

Dale Imlay Asked If He'd Thought about Moving from an Accounting Technician to an Accountant Position

An interesting side note–well, two interesting side notes. While I was doing that job, George Johnson had–well, actually I need to back up just a little bit. Dale Imlay, who I was then working for, asked me if I had thought about doing anything as far as progression from an accounting technician to an accountant, and I said, "Well, I'd probably have to go back to school and take up some classes." He said probably not, but that any work that I would need, he would do it on a tutorial basis with me, and so I took his advice and made application to OPM, I guess, at that time, was the governing body to take the examination to become certified as a government accountant and auditor.

I guess, based on my college work and my then-experience with Reclamation, even though it was maybe just a year or two, I was quite pleasingly surprised to get a note back from OPM that they had qualified me as an accountant, even though it was at a GS-5, but it was still one grade higher than I was. The beauty of that was that George Johnson had–one morning we were having a get-together at one of the offices, and he had asked me something about that, what my aspirations were, and I said, "Well, if I could get qualified as an accountant, then I'll look for a higher grade," And he made the proclamation before Dale Imlay and a number of other employees, he said, "Well, as soon as you get your certification, I'll get you a promotion."

"George Johnson . . . went out, and they did whatever was necessary to convert my position to an accountant's position, and I got the promotion, and that was the beginning of actually a very rapid rise, at least for me. It used to be a

standing joke in the region that I never saw the second level of any grade because I was always moving up into a new grade level. It was mainly just out of pure happenstance, luck, and being there as these older employees decided that they didn't want to learn a new trick. . . ."

So, the day after the mail arrived saying that I'd been certified, I took it in and handed it to him and said, "Well, I've got my certification." And George Johnson, bless his heart, was true in his word. He went out, and they did whatever was necessary to convert my position to an accountant's position, and I got the promotion, and that was the beginning of actually a very rapid rise, at least for me. It used to be a standing joke in the region that I never saw the second level of any grade because I was always moving up into a new grade level. It was mainly just out of pure happenstance, luck, and being there as these older employees decided that they didn't want to learn a new trick. That started creating some vacancies at the higher end. People ahead of me, of course, moved up into those slots, that vacated lower slots, and so I was able to step from an accounting technician to a cost accountant, to accounts receivable, to doing–well, I did power accounting from the beginning of my career there, and then moving to contract administration and fiscal accounting. So while it was quite a rapid rise from a GS-4 to a GS-9, it was more happenstance and circumstance that caused that to occur.

Provided Support to the Commissioner's Budget Conference in San Diego

But one of the interesting little assignments that I had while I was working there was to go to San Diego as a staff support person for the commissioner's budget conference. This is back before we had the B-R-C, the Budget Review Committee.

Storey: This was the [program conference] ~~skull session~~?[12]

Boyce: This was the [program conference] ~~skull session~~ when the commissioner and the commissioner's staff and the head of our budget and finance in the Washington office, I guess, would be the equivalent of Bob Walsh–is that his name?

Storey: Bob Wolf.[13]

Boyce: Bob Wolf. Would all gather with the regional key people, budget officer, regional managers, and directors, finance people, they'd all gather somewhere, and they would spend literally a week formulating the budget that was going to be ultimately submitted to the department and then, of course, to the Congress.

But it happened to be LC Region's turn to host the conference. I guess it rotated from region to region. At that time, the regional director in Boulder City was

12. The interviewer misspoke and should have said "program conference." These conferences were to iron out issues with the budget and to track the budget. "Skull sessions" were held to allow the commissioner to practice for budget hearings before the Congress.

13. At the time of this interview Bob Wolf was the head of Reclamation's budget office and later the director of the Program and Budget Office in Washington, D.C. Bill Klostermeyer was the budget officer during this meeting in San Diego. Klostermeyer's oral history is available.

Manny [Manuel] Lopez, and he felt that it would be more appropriate to meet in San Diego, for a whole lot of reasons, but it did require somewhat of a logistical effort in order for the Lower Colorado Region staff to support the effort to be done there. One, of course, entailed clerical typing help, so there was two or three of the ladies out of the front office that went to establish an administrative office there, to take care of travel and general typing and whatever else needed to be done. They took two of the project office budget officers to go in to support the updating of the budget sheets as the meeting progressed.

Program Automated Budgeting (PAB) System

The interesting thing was that the PAB system, or what we now know as the PAB system, Program Automated Budgeting system, I think, is what it means, the prototype had been developed by an individual in Sacramento, as I recall. I don't even recall his name. But he was unable to go to the conference and run his software.

". . . I was tapped by the region to go to the conference, . . . and work through an FTS line between the Denver office here–this is back when we had the Cyber . . . Of course, all of our accounting work was being done on the Cyber here, even from the regions. . . ."

So I was tapped by the region to go to the conference, carry with me a computer terminal, which also had its own built-in printer, and work through an FTS[14] line between the Denver office here–this is back when we had the Cyber–was it the Cyber? I believe it was the big Cyber mainframe computer. Of course, all of our accounting work was being done on the Cyber here, even from the regions.

How a Printout of the Revised Budget Figures Had to Be Arranged for During the Meeting in San Diego

So, I was linked by FTS telephone line from the hotel in San Diego to the region and also to the mainframe computer here in Denver. Well, that was all well and good. I mean, I could do the updates that way from time to time, but I had no way to get a *printout* of all this myriad of data that had been updated, literally, the day before. So we jury-rigged a system where Tony Jensen, who was the assistant data processing officer in LC Region, would go in to work at five o'clock in the morning and would print off all the files that I had disposed of from San Diego through the Cyber back to Boulder City. He would print those off, beginning at five in the morning, on four-part computer paper. Then he'd have to burst that apart, collate them, package them up in an air freight package, get in his car, and run to Las Vegas some thirty miles away, go to the air freight terminal and put that package on the first plane to San Diego out of Las Vegas every morning. I would go to the airport at San Diego, to the air freight office, and wait for that package to come in, grab it as soon as it came off the plane, back to the hotel, open up the package and get the contents all distributed out to all the regional budget officers so they could begin the next morning session.

14. Federal telecommunications system.

So, we were doing this literally day and night, and it was an interesting relationship, because I knew the computer operators here in Denver by phone, had not met them other than over the phone, and the only thing that had a higher priority on the mainframe was payroll during that process. If I needed the computer, I got it hands down. All I had to do was pick up the phone, call, and I had first priority, except to run the payroll.

The other thing that was happening during that time is that–

Storey: Before you go on, what you were doing was using a terminal in San Diego to input the data that they were developing in their conferencing?

Boyce: Right, and updating the files here that were resident on the mainframe here in Denver.

Storey: And that would show the new proposed budget figures.

Boyce: Right. And then, after all of the updates, they would come in periodically during the day, and I would work until about eleven o'clock each night, which was midnight, of course, in Denver, and that was, of course, the time that maintenance always took the mainframe *down* for periodic maintenance on the mainframe. I would literally be on the phone talking with the computer operator right up 'til the eleventh hour and the fifty-ninth minute, and they would leave me on-line right up until they absolutely had to take the machine off-line. Then they would tell me what time *I* could get back on the machine. So there was many a night that I would go to bed at eleven-something, closer to midnight San Diego time, sleep for two or three hours, and get back up so that I could be logging back on the mainframe at four o'clock Denver time, which would be about 3 a.m. in San Diego, in order to make sure all of the processing was complete by 5 a.m. Denver time, in order to allow sufficient time to dispose the print files back to Boulder City, which, of course, would be an hour earlier, so that they were there waiting at 5 a.m. when Tony would come in.

I had an interesting tenure down there, because not only was I there on per diem, but they authorized me overtime, so I think I came very close to maxing out, in that particular pay period, the amount of pay I could receive, because I was almost as much in overtime and per diem and travel and everything else as the regional director was. That was a standing joke in the region, that the only person that got paid more that particular pay period than me was the Regional Director because of the number of hours that it took to do that.

But it was an interesting process. It was recognized by the commissioner, Gil Stamm at that time. I was trying to think of the gentleman's name that was the Reclamation's budget officer. All of those people made it a point to come in and talk to the staff, the administration support staff, and compliment us on the work that we had done and thank us for the dedication to getting it done. The regional director sent us all an addendum to the commissioner's thank-you letter that we all formally received. It was nice to be appreciated from the aspect that we'd done a good job. We had enabled the process to work even though it was somewhat of a remote site.

I need to tell you a little funny story. It's just kind of an anecdote, I guess. I had taken my family with me, and my children were young at the time. It didn't cost any more for them to stay at the hotel than I did. So we had a twelfth-floor room. We were staying at the–I believe it was the Holiday Inn at the wharf at San Diego at that time.

Storey: Looks out on the bay there.

Boyce: Looks out over the bay and Anthony's Sea Grotto and the sailing ship and all that, and our room, I believe it was on the twelfth floor, and we looked right out over the pool and right out onto the bay. I found out later that the–I believe it was the commissioner's room was right below mine, much to my chagrin, because I had two young children, and young children are young children. So I had to make sure that they stayed relatively quiet during the time that the commissioner was in his room.

My family, because of other acquaintances, they spent the days while I was working going to the zoo and Sea World and things like that with friends of our family there.

But the first Sunday–we literally went on Friday, before the conference began. Officially it began Sunday evening with a social, and then Monday, of course, the work began. Many of the attendees brought their spouses with them. So it was an opportunity for the hierarchy of Reclamation, I guess you might say, to meet not only professionally but socially, and intertwine with their wives. But we'd gone down Friday and worked Saturday getting all the preparations in place, making sure the room was all set up and nameplates were where they were supposed to be.

My wife had indicated she wanted to go to the beauty shop there in the hotel Sunday morning in order to get her hair done before we had the social event that Sunday evening. The regional director's secretary was a lady by the name of Rebecca Dalton, I believe, and she graciously, for whatever reason, she had an appointment early Sunday morning in the beauty shop there, and she decided she didn't need to go, so she just said to my wife, "You go in my place and take advantage of it."

So my wife went off to the beauty shop, and I took the kids with me to go down, because I had a little bit of update work to do and wanted to be available there in case the ladies needed stuff to be moved around or whatever, that I'd be available. So I was sitting down there working, and the kids were being extremely cooperative that morning. Of course, they had a video game around the corner, so they were coming in periodically to get change from me to go play that, but they were really behaving themselves very well. They had come in, I guess they were tired of playing the machine, and I was just finishing up my work, and they were getting a little antsy, so I was trying to give them something to do to keep them entertained, give them a piece of paper and pencils to draw with, whatever, and they were doing pretty good.

And all of a sudden, I realized I didn't hear them talking. I looked around and didn't see them. So I got up from what I was doing, walked out into the area where

the admin office actually was. We were kind of in an alcove where we were doing the budget updates. And, lo and behold, here was the regional director's wife down on her stomach with the Sunday funny papers spread out, reading them to my children. Rosie Lopez–she's now deceased, I understand, but a beautiful woman, just as common as could be, and there she was, the regional director's wife, down there reading the funnies to my kids. I didn't know whether to run and hide or what, but she was just that type of an individual and kept them entertained, and they were most gratified to have somebody read the funnies to them. So that took care of that problem, and shortly thereafter my wife got out of the beauty shop and we went off to do the other things that we did that day. The budget officer's name for Reclamation was [William (Bill)] Klostermeyer.

Storey: Bill Klostermeyer.

Boyce: Bill Klostermeyer. Bill was there, and I'd heard a lot of stories, I guess, a reputation, and, of course, he was much higher up on the totem pole than I was, so I didn't have a lot of interaction, but I do recall that the following Saturday, as we were getting ready to leave, he was outside of the hotel by the pool and made a point to come up to me and thank me personally for the work that I had done. It's the first time I really had of real intimate contact with Mr. Klostermeyer. I've know him since over the years, but really a nice gentleman to come up and make the comment to us.

I recall–you know, here again, having lived in San Diego just prior to that period of time, I was pretty familiar with restaurants and whatnot, and after the Sunday evening social was starting to wind down, and number of people, including a number of the key members out of the Washington office whom I kind of knew by reputation, didn't know personally, and certainly, as a GS-4 or GS-5, whatever I was at that time, was greatly intimidated by the stature of the people that I was interfacing with at that time. Well, as the social started to wind down, people were getting hungry and wanted to go eat, and somehow or other the word got out that I used to live in San Diego or recently lived in San Diego, so there was a cluster of them that cornered myself and said, "Hey, where can we go eat?"

I said, "Well, there's these type of restaurants."

They said, "Well, come on. Let's go. We don't know where to go." I remember getting on the phone and calling a particular place in National City, I believe it was, called the Butcher Shop. And for whatever reason, I don't know why, we used to go to the Butcher Shop when we were living there in San Diego, and I had a credit card from there that they had sent me unsolicited. So, I called them and said, "I used to live here. I used to frequent your place often. I've got this whole gaggle of people that want to come eat. Are you open?" Because it was getting rather late in the evening.

They said, "Sure, no problem. Come on down."

So I told them who it was, and we, I think, took three or four carloads of us, and off we went to National City to the Butcher Shop, and in we went. They set us

up with a number of booths and tables together so we could really have a nice evening out. As I said, it was very intimidating to be in that caliber of Reclamation hierarchy as a GS-4, but it was a wonderful evening. We had a great time, a nice meal, and a lot of good fun. So I got to meet a lot of these people that knew by reputation or by *name* association. I literally got to be with them and deal with them on a more social level at that time. Talk about putting a young new employee right on the spot and getting thrown into the frying pan. I was a little intimidated by the requirements of the job at that time.

Manuel (Manny) Lopez[15]

But it was fun, and, certainly, memories of Rosie Lopez reading funnies to the kids, we'll never forget those things, a tribute to a very nice lady. I understand her husband is still here in the Denver area. I haven't seen him.

Storey: He lives south of the Federal center about ten miles.

Boyce: Is that right? Well, I'll have to give him a call and say hello to him.

Storey: Yeah, he's in the phone book. His wife's name is Genevieve.

Boyce: I understand he's remarried a mutual friend, so I've got to become aware of his presence and say hello to him, because he certainly treated me very nicely as a regional director dealing with an employee, just a consummate gentleman. I really enjoyed working with him.

Storey: What of the other people in the office? How did they view Mr. Lopez?

Boyce: My sense is that most people really had a great deal of respect for Manny Lopez. I think there was a lot of disappointment in his moving on and going to other things when he left as regional director. I really perceived that he was just very highly thought of by the employees. I don't recall hearing negative comments. Other regional directors, of course, you hear those things, but I don't recall–

Arleigh West

Storey: His predecessor was Arleigh West, I believe.

Boyce: Arleigh G. West had a reputation amongst the employees that was not of the same caliber that Manny Lopez enjoyed. Arleigh West had left before I entered my career just barely. Actually, I think Manny was a fairly new regional director when I came on board. So Arleigh had a heck of a reputation. I knew him, his reputation, as a member of the community and that, and I knew his children, but he certainly had a different rapport with the employees than Manny did.

Storey: He did, huh?

15. Manny Lopez's oral history is available.

Boyce: Yes, he did. I'm not going to venture any further than that.

Storey: Who came after Manny?

Boyce: Good question.

Gene [Eugene] Hinds

Storey: Let's see, Manny left in March of '79 and was replaced by Gene Hinds for a couple of years.

Boyce: Gene Hinds, while I was there, and recognize that I left in the '77-'78 time frame to go to Western, so Manny was still regional director when I was there, and Gene Hinds was the–golly. He worked at that time for Roy Gear, who subsequently became an assistant regional director. Roy Gear was the head of the 400 Division, which would have been water and lands, I believe. The head of the power division at that time, or group, was–oh, darn. I know him, too. I'll think of his name in a minute. He subsequently retired and went to work for Nevada Power Company. And under him in the power division was Bob Olson, Dave Onstead was there, Harold Hood was there, Marlene Moody. As a matter of fact, that's where I met Mike Roluti. He had just hired on in the power group. There was a fellow there in the power group by the name of Jim Chetlet [phonetic], who went to the Federal Energy Regulatory Commission. Jim Chetlet was the person that introduced me to power repayment studies. There's where I got my fundamental underpinning in the power repayment business.

Moved to the Western Area Power Administration as a Public Utility Specialist

Ultimately, Bob Olson, of course, became the area manager when Western was formed, for Western in Boulder City, and I subsequently went to work for him, actually working for Marlene Moody, who went to become a member of the Western staff also. Her position was head of the power marketing group, so I transited from being an accountant for [Reclamation] ~~Western~~ to becoming a public utility specialist working for Marlene Moody, who, in turn, reported to Bob Olson at Western at that time.

END SIDE 2, TAPE 1. AUGUST 28, 1997.
BEGIN SIDE 1, TAPE 2. AUGUST 28, 1997.

Storey: This is [tape 2 of] an interview by Brit Storey with Harvey W. Boyce on August the 28th, 1997.

Boyce: –those people that worked in the power division that transited or went over to Western Area Power Administration. So I knew them from my association with them as a power accountant in dealing with the Power Division as part of the finance group then.

Work on the Central Arizona Project and the Navajo Generating Station

This, of course, was during the time that the contracts were being negotiated for the Navajo Project and construction of the Navajo Generating Station, and that's where I had a lot of dealings, both from the *power* perspective and the contract administration perspective, in the construction contracts, because I was the one that initiated the payment process for the construction contracts that Reclamation was participating in with Salt River Project and also the people that were literally boring holes in Buckskin Mountain, J. F. Shea Construction. I can't even remember all of them anymore that I dealt with there as far as initiating their progress payments for contract performance.

So, I had a great deal of exposure to not only the development building and the contractual relationship that Reclamation had with Salt River Project, the Peabody Coal Company, Nevada Power Company, Los Angeles Department of Water and Power, Arizona Public Service Company as construction managers for their various segments of the thing we call the Navajo Project, which was not only the steam plant itself, the coal supply to that plant, but also the western transmission system associated with–and western not being Western Area Power Administration but Western meaning geographic direction–as well as the southern transmission system that were part and parcel to this thing we call the Navajo Project.

Reclamation Staff Who Moved to Western

So, I had a kind of a ground-floor beginning with Navajo and Central Arizona Project actual construction, a lot of history and the people that were involved in it. Harold Hood's name comes to mind, who went from the Power Division to Western and subsequently moved to Denver in the Western organization. David Onstead was in the power group, subsequently went to Western as the district manager in the Phoenix office. Peter Ungerman [phonetic], who was, I think, the district manager at that time for Reclamation and then became Loveland area manager for Western. A lot of those people that have subsequently been the key initiators, I guess, Bob Olson, Bob McPhail, that put the Western organization together from Reclamation staff, actually, I had a great deal of initial contact with them and then subsequent contact with them as I worked in Western, especially in the rates group.

Storey: Before we talk more about Western, though, FAST was being run on the computer in Denver?

Boyce: Right.

Storey: Tell me how all that worked and what the complications and so on were.

How FAST (Financial Accounting System on Tape) Worked

Boyce: That was, I guess, a tribute in a way to the fact that through our communications system, principally FTS lines, but they were dedicated, all of the regional offices and even, I believe, the district offices were linked together by some quasi-automated system. There were computer terminals and equipment in each of the district offices, as well as the regional office.

We were using Control Data Corporation equipment in the regional office as far as the actual terminal interface to the Cyber. We had regional data processing people that maintained that and the communication links and all that, and I never got involved with that other than as an inputter of data into programs that I interfaced with the data processing people, and they did the uploads to the Cyber. They did the downloads of data. They ran the print programs for us. I was a user of that data, and I guess that was pretty much routinely done throughout all the regions as each of the regions converted from the hand system to the FAST system. It was an interesting evolution. It was a exciting time to be part of that transition.

". . . during that period of time, I believe it was '74-'75, the Congress decided that it would be more appropriate to change the fiscal year from the July 1 to the now October 1 time frame, and we had to not only cope with the transition from hand to automated, but now we had to cope with the change in a different *accounting* cycle. . . ."

Also during that period of time, I believe it was '74-'75, the Congress decided that it would be more appropriate to change the fiscal year from the July 1 to the now October 1 time frame, and we had to not only cope with the transition from hand to automated, but now we had to cope with the change in a different *accounting* cycle. I remember that when we closed the fiscal year that was to be the last time that we closed on June 30 as the fiscal year, then we had this thing called the transition quarter that was from July 1 til September 30th. So we not only got to close on the end of the operating year on May 31, we closed on June 30th for the fiscal year, we opened again for the transition quarter, we closed again on the transition quarter, and for the now end of the *new* fiscal year, and we opened up business on October 1 under the new fiscal year configuration and then closed again on December 31st for the calendar year.

"So *that* particular year was a very exhaustive year as far as opening and closing of the financial records of Reclamation, and that was true in every region and the Washington office and the Denver office. So the folks in budget and finance got their fair share of exercise that year. It was a lot of work, a lot of long hours, getting through that process . . ."

So *that* particular year was a very exhaustive year as far as opening and closing of the financial records of Reclamation, and that was true in every region and the Washington office and the Denver office. So the folks in budget and finance got their fair share of exercise that year. It was a lot of work, a lot of long hours, getting through that process, but we all managed to survive. That would have been, actually, before I *literally* physically left Reclamation's employment and moved on over to Western's employment.

Storey: Tell me about dealing with Denver. What was the process?

Dealing with Denver to Process Budget Data on the Cyber

Boyce: The process, for the most part, was transparent, probably, to most people from a data processing perspective. I'm sure our data processing officers there, Lou Roelfs was the senior and Tony Jensen was his assistant there. I know that they spent a great deal of time in consult and on the phone or in meetings with the Denver data processing people.

Interesting enough, Larry Hancock, a former regional director in Boulder City, now retired, was, I believe, in the Sacramento office as the data processing officer. And so when Larry came to the LC Region as the regional director, we were able to renew some old stories and old war stories, I guess, about the transition of the hand system to FAST and the transition quarter and that.

My relationship with Denver was probably more on an operator-to-operator basis, because when we were doing the monthly updates of all the accounting data or even the weekly updates, my job entailed literally loading all the data, generally after hours, or we'd start late in the afternoon loading the punchcards into the reader in Boulder City, feeding that information via some software routine, which I had minimal input to other than to call the program up, and it would ask for the input, I would feed the cards in, and then it would update on the Cyber.

Then after that process was updated, there was a series of steps that we went through in running various programs that would massage that updated material, collate it into and merge it into the computer files, causing the various accounting transactions to occur within the Cyber environment and then printing off the results of that through various reports, pulling trial balances, pulling error summaries, correcting those error summaries until we got all the transactions in correctly, then pulling off the preliminary reports, looking at them to make sure that the various accounts were in balance, that they weren't having to check through and find out where the errors were occurring, make those corrections. It was a very repetitive process until you got to the point where the trial balance came off in balance.

So myself and Jack Palm would spend a lot of evenings doing that, and if it was month-end closure, quite often we would have one or two of the key people in the office that would be there with us to assist in tracing out the errors, getting the errors corrected, and getting the data updated and re-run. If it was *year-end*, then there was a lot of folks there. I wasn't there by myself necessarily, other than to just do the preliminary stuff. As I said, many a times that when we were doing year-end stuff, after we knew that the books had closed successfully and we had all the balances, there was just a myriad of reports that had to be printed out, and these reports on computer paper would probably be in the neighborhood of eighteen inches thick, and so it would take time even for high-speed line printers to print that off.

Quite frankly, that's where I would be throughout the night into the early morning, is there to make sure that the printer didn't run out of paper or didn't jam, because they notoriously would do that, especially when you were running four- or six-part paper with carbons in between. Printers had a tendency at that time to want to eat paper up, so you have to make sure that they didn't jam, or if they did, that you got the jam cleared and got the paper correctly loaded on the machine and let it

process through. So I spent a lot of nights just listening to a printer clack in the background while we made sure that it processed through and got the reports out.

But I, because I was working late at night, spent a lot of time either computer terminal to computer terminal with the Cyber operators here, or on the phone with them. I got to know most of the operators, certainly by voice, and they knew who I was by voice. I remember there was a lady that generally would be working the night shift when I was, and she had a very pleasant voice. We got very well acquainted on the telephone, and I had never met her eyeball-to-eyeball. I happened to be in Denver, actually, about a year later and had gotten on an elevator here in Building 67 and was riding on the elevator with a number of other employees. A woman was talking to another person on the elevator, and I picked her voice out as being that particular operator.

So, when she got off the elevator–actually, I think, the Cyber was located on third floor at that time–I got off with her, and I called her by name, and I said, "Do you know who I am?" and she picked up my voice just like that (snaps fingers) also. So we actually met on the elevator here in person, and so she took me down and showed me the Cyber. I'd never even seen the Cyber. I knew where it was, but I'd never even been in the room. She took me down there–of course, it was a secure area at that time–and gave me a tour, and we got a chance to visit.

Actually, she had been one of the operators while I was working out in San Diego, and so we had a chance to kind of reminisce about that little lash-up that we had in trying to get the reports out on time and that. So I had a chance to go have coffee with her and get to meet her and visit with her. I guess she subsequently retired. I lost track of her when I went over to Western, but an *extremely* cooperative and helpful individual, as most of the operators were. When they knew we were pushing a deadline, they went out of their way to see that we got maximum exposure to the Cyber to get through our particular crisis, and I think it was very indicative of the quality of employees that we had here in the A-D-P area at the time. They were truly there to help, and did a lot–went out of their way to help.

Storey: You mentioned a little while ago that there were cost-accounting ledgers and fiscal ledgers and voucher ledgers–what are these all about?

Cost Accounting at Reclamation

Boyce: Well, the cost-accounting records, cost accounting is a business unto itself, actually, but Reclamation's–well, actually, most of the government, I think, is basically on a cost-accounting basis, and that is where we keep track of time and material and supplies and parts and vehicles and aircraft and services of contractors, transportation, right down to specifically identified features of a project.

We used to probably do it in more detail than we do it today because things were most specifically identified. A truck was identified to a specific feature or a specific job production. Like a crane was used on Boulder Canyon Project. If that crane was being used to work on a switchyard, then when we would identify in the

cost ledger that switchyard, that piece of equipment that was being worked on, we had to literally attribute the amount of run time that that crane was used to that particular piece of equipment. So we could tell pretty close to exactly what was done on a particular job on a particular piece of equipment.

"The system today, while it allows for that type of detail, typically we don't track it that closely, or at least not here in the consolidated area. Now, maybe the regional office or the project office, facility area offices, do, but as things became automated, a lot of that fine detail started to have to, by necessity, be rolled up to the next higher level. . . ."

The system today, while it allows for that type of detail, typically we don't track it that closely, or at least not here in the consolidated area. Now, maybe the regional office or the project office, facility area offices, do, but as things became automated, a lot of that fine detail started to have to, by necessity, be rolled up to the next higher level. So rather than keeping it right down to the actual equipment, crane number, we went and worked on breaker number like we used to be able to do, now we fundamentally distribute through some sense of experience that we've had that we use a crane so many percents of the time to do substation work or transformer work or whatever.

So we've used our experience to now make somewhat of a judgment and say we don't have the resources now to do that fine of accounting, and our experience shows us that, over a period of years, that typically we use a crane to do this type of work so much hours of the time. So the cost-accounting records is where that fine of detail was kept. As the cost accounts were rolled up–for example, O&M expense was broken down into various cost accounts. O&M expense, as a general ledger, is basically a number or two numbers, a debit and a credit number. The expense accounts roll up to the income and expense summary, and that moves on to other things. So, as the various levels of the accounting system roll to the next hierarchy, you roll up into basically the standard general ledger accounts that are shown on a balance sheet, which is the asset accounts and the proprietary accounts, which, in our case, are our capital assets. And then, of course, the treasury accounts, which is accounting for the budget money that we receive, or appropriations, how that was expended by accounting symbol, a treasury symbol, and those revenues that we receive for selling power or water or whatever service that we provided and we received funds for, all of that had to be tracked back into the standard balance sheet accounts.

Fiscal Accounting at Reclamation

So, the fiscal accounting dealt with more of the standard balance sheet accounts, the main general ledgers, where the cost accounts dealt with the *details* of each of those general ledgers, whether it be payroll, whether it be travel, whether it be O&M cost, whether it be interest expense, equipment usage, inventory control, stores, whatever. That's really where the finite work was done, was in the cost records, and they then rolled up to be the supporting documentation under the more general ledger level accounts.

Storey: How long were you doing this?

Boyce: I started in '72, and I've been involved in accounting probably up through ~~'80~~. . . oh, I would guess '85-'86 time frame, somewhere in that period of time.

Storey: I didn't ask that question correctly. When you started out, you were working on the hand accounting and FAST.

Boyce: And the beginning of FAST, right.

Storey: When did you move away from that and begin to do something different in Reclamation, or maybe just *expand* your responsibilities?

Power Accounting for Hoover and Parker-Davis

Boyce: Well, in correlation with that process, I also was doing the power accounting for Hoover and Parker-Davis. So amongst those three assignments, that took the bulk of my time. Then, as I said, I transitioned.

". . . I started doing accounts receivable and actually collections for revenues that we were receiving. Then I moved on into the contract administration, contract payment. . . ."

As we moved more from the hand system on to the automated system, my demands for time on the hand side rapidly diminished, but they expanded in the fact that then I started doing accounts receivable and actually collections for revenues that we were receiving. Then I moved on into the contract administration, contract payment.

". . . over a span of about six years, I guess, I got a great deal of experience very quickly, a whole wide range of the accounting process that we still do today. . . ."

That all transitioned, literally, very quickly from the 1972 until 1978 time frame, so over a span of about six years, I guess, I got a great deal of experience very quickly, a whole wide range of the accounting process that we still do today.

Storey: Tell me about–what's power accounting?

Power Accounting

Boyce: Power accounting really is a subset, if you will, of accounting. It is accounting for the energy and the capacity that we produce out of the powerplants. That's the other side of my job when I worked for the city of Los Angeles, where I was doing the meter reading then. I was now taking the results of thirty days' worth of meter reads, of revenue meters and motoring meters, transmission line meters, loss meters, and using those meters to develop the actual generation developed at the plant, the losses associated with that generation, the losses associated with the transformation. We also could see from meters the amount of actual kilowatt hours that was delivered to each of our power contractors at the switchyards.

So, based on all of those readings occurring over a thirty-day cycle, knowing what our beginning meter reads were at the beginning, at midnight on the first day of the month, and what the meter read was at midnight as of the last day of the month, the difference there converted to energy delivered or capacity available. So, using that and under the contract terms that we had with each of our power contractors, we prepared various reports that were submitted to the region power people, to the project folks. Copies went to the customers. Copies came to the Denver office to be filed who knows where.

Those reports were the basis for preparing an actual power bill that was sent to Company XYZ for the month of–June you used so many million kilowatt hours, multiply that by the energy rate, and that converted to dollars owed the United States. The same was true with capacity available to them, transmission services, a number of things that we metered and billed for. So I would literally take the meter reads that I used to make, now as an employee of Reclamation, as a power accountant, was using *that* information to develop reports, to develop power bills, to send power bills out, make sure the power bills got paid, calculate late payments if they weren't paid on time.

". . . I happened to be doing power accounting when the comptroller general of the state of Nevada lost his job because Nevada forgot to pay the bill on time and it cost them a great deal of money in interest. . . ."

As a matter of fact, a little aside there is that I happened to be doing power accounting when the comptroller general of the state of Nevada lost his job because Nevada forgot to pay the bill on time and it cost them a great deal of money in interest. This particular comptroller general had been selling the state legislature of Nevada on an automated system, and for a number of reasons, and I'm probably sure I don't know all of them now, he hadn't produced what he had promised to deliver, and subsequently, because the state had become delinquent and it cost them penalties for late payment of their power bill into the thousands of dollars order of magnitude, that, coupled with a few other incidents that occurred within the state accounting system, that individual was terminated.

I remember reading in the local paper, as this exposé started to come out about the state accounting system, that they attributed a large part of his demise in tenure there as being Hoover bills being late. So it was one of the things that I was privy to, the fact that two or three employees of companies, because these bills were important, and the penalty for late payment was costly, I know of people from mail room clerks to comptroller generals that lost employment for negligence in performing their duties over those type–just in the term that I was there.

END SIDE 1 TAPE 2. AUGUST 28, 1997.
BEGIN SIDE 2, TAPE 2. AUGUST 28, 1997.

". . . Metropolitan Water District of Southern California, who was the largest Hoover contractor and had, obviously, the largest bill each and every month, routinely–I mean, you could set your watch by it–would always make sure that

their payment went in the mail at the very last moment . . . so it would go out so they could maximize the earnings on their monies. . . ."

Boyce: An interesting aside to that was the Metropolitan Water District of Southern California, who was the largest Hoover contractor and had, obviously, the largest bill each and every month, routinely–I mean, you could set your watch by it–would always make sure that their payment went in the mail at the very last moment on the due date so that it was always postmarked just–we always used to swear that they stood right at the post office, and at 11:58 p.m. they would insert it and get it postmarked so it would go out so they could maximize the earnings on their monies. It was just kind of a joke, but we were all kind of having a pool to see who was going to get to bill the first penalty to Metropolitan Water District. I don't know that anybody ever did, but, boy, they were always the last payment, and we could always be sure that they'd be the last check we'd receive on the billing cycle.

Power Revenue General Ledger 450 and Generation O&M General Ledger 451

The power accounting process would be really kind of attuned to the cost accounting side of the revenue support for our power revenues. The cost accounts there under General Ledger 450, which is the power revenue general ledger, would be broken down by each of our power contractors, and so I kept track of each one of those accounts separately, and the *expenses* associated with generating that power went into General Ledger 451 under "Generation O&M," which is the work that I'm doing essentially today. If I were to take and look at the cost summary of accounts for General Ledger 451 for generation of all of our powerplants, I should be able to also go over and pick up all of the *revenues* out of General Ledger 450, or whatever its equivalent is now, and match power receipts to power expenses. By doing that, I can come up with the equivalent of what it cost Reclamation to produce power, because, with the exceptions of the Navajo Project, we generate revenues only to the level necessary to pay our expenses.

". . . we are a cost-of-service company. We don't make a *profit* on our sale of power, unlike a private utility or an investor-owned utility. . . ."

In other words, we are a cost-of-service company. We don't make a *profit* on our sale of power, unlike a private utility or an investor-owned utility. So I guess that's why I got selected for this job, is because of my background and understanding of the power *accounting* process, coupled with my *rate-making* experience while I was at Western and my cost accounting and my fiscal accounting and auditing experience early on in Reclamation. I guess I've had, *probably*, a very broad scope as far as how to correlate *power production*, kilowatt hours and kilowatts to dollars and cost per dollars, cost per dollars of kilowatt hours and capacity.

Storey: When you say we don't charge more than our cost, do we have a sinking fund for future large expenses? How does that kind of stuff work?

". . . in our accounting system, we've changed–certainly in my career, we've changed from a depreciation-based accounting system to what we call a replacement-based system for accruing funds to replace equipment. . . ."

Boyce: For replacements–and it's an interesting question, because in our accounting system, we've changed–certainly in my career, we've changed from a depreciation-based accounting system to what we call a replacement-based system for accruing funds to replace equipment. The problem with that, other than for special funds in treasury like revolving accounts or available received accounts, the general Reclamation Fund accounts, we get, annually, an appropriation via Congress through the Treasury, that basically is what we forecast or project we are going to need to pay for operations, expenses, maintenance expenses, *and* to either replace equipment or upgrade equipment or build new equipment, or build new facilities. So, the revenues that are associated with that equipment as we sell power from that facility, that revenue doesn't go back directly dollar-for-dollar against the dollar of expense that we've incurred. It goes back to Treasury as a general offset to the appropriations. If the appropriations was kind of like our *loan* from Treasury, the Reclamation Fund encompasses all Reclamation projects with the single exceptions that were specifically authorized by Congress.

". . . we incur national debt, because every time there's an appropriation, there's a *debt* incurred. On the other hand, as we return funds back to Treasury from power sales, water sales, leases of grazing rights, whatever, that revenue goes back as an offset against that debt incurred, which makes Reclamation a very unique organization within the Federal sector, because we literally pay back. We are revenue-producing. . . ."

So, all of the *revenues* from general Reclamation power sales or water sales go back as an offset against these appropriations. So, yes, we incur national debt, because every time there's an appropriation, there's a *debt* incurred. On the other hand, as we return funds back to Treasury from power sales, water sales, leases of grazing rights, whatever, that revenue goes back as an offset against that debt incurred, which makes Reclamation a very unique organization within the Federal sector, because we literally pay back. We are revenue-producing. We are like the IRS [Internal Revenue Service] in that aspect. We actually generate revenue that offsets debt.

As I mentioned, while I was at Western, (in) 1987, Hoover's original debt was repaid, retired. There's 115-, 116-, 32- million, whatever the amount was of national debt that's no longer there. It's all been repaid and repaid *plus* interest. Parker-Davis Project, something in the order of magnitude of 68 to 70 million dollars all repaid with interest. So, unlike HEW [U.S. Department of Health, Education and Welfare] and VA [Veterans Administration] and a lot of these agencies that are basically give-away programs, to use a very bad term, we actually make money for the country. We sell a product, we generate revenue, and we pay off the debt.

The difference between the way we make money ~~for the company or~~ for the country as opposed to the way an investor-owned utility like Nevada Power

Company, who has stockholders that are the supplier of the cash capital, we use Treasury. The stockholders get a rate of return–interest, if you will–on their investment, and so *our* rates are set to return the cost of the loan of Federal money to us, which is generally a very low rate. Starting off at 3 percent, I think it's up around 7 or 8 percent now, and it moves quarterly, but it's based on Treasury, and it's based on fifteen-year negotiable loans, I guess, or some are even based on thirty-year, which is a different basis for doing that.

Those projects that have specific authority like a revolving fund or available receipts, they basically get to spend what they make. Congress approves them. They're expending their revenues, and Congress does not send to them, in this situation, via Treasury, an appropriation, if you will, at the beginning of the fiscal year and say, "Here's your money for the next year. You can go off and do this stuff." They say, "Here's the revenue that you've earned over the past year. You can spend so much of it." Or in the case of Hoover, they can spend it after they receive it, but they can't spend it beforehand. But this way they're not incurring more Federal debt.

"There will be, obviously, some money in excess of the actual cost, because the rates are based on what we *project* will happen. The revenues are based on actually what *does* happen. If we have more water than we anticipated when the rates were set, we're going to generate more power, we're going to sell it at a *rate* that was based on a bad number, if you will, or on bad estimates, and we're going accrue more revenues. . . ."

There will be, obviously, some money in excess of the actual cost, because the rates are based on what we *project* will happen. The revenues are based on actually what *does* happen. If we have more water than we anticipated when the rates were set, we're going to generate more power, we're going to sell it at a *rate* that was based on a bad number, if you will, or on bad estimates, and we're going accrue more revenues. Well, does that mean we just violated the rule of not making a profit? Well, the way the Congress looks at it is, until that debt, all those appropriations that were used to build the plant, until that is totally satisfied, you still have an obligation. You will not add a cost-of-service level in the actual Utopia situation until that debt is totally retired.

Power Revenues Are Used to Pay off Some Irrigation Project Costs, after the Power Investment Is Paid off

So if we gain more revenues in a year, we still have debt. We use that excess revenue to accelerate the retirement of that debt, and that's all been prescribed by Congress. Not only that, but Congress even said that in the case of facilities that have associated power facilities, that cost attributable to the water conveyance, irrigation, ~~of~~ the navigation of rivers and that, that if those costs that are associated with water users that the secretary of interior deems is beyond their ability to repay, and there's a formula process which I'm not really familiar with, that the water people have to go through in their water repayment contracts, begin *water* revenue repayment, goes toward repayment of debt also along with power, but because the Congress has told

the secretary, "If you determine that an irrigator cannot repay all of his costs associated with his *water* system and his *water* contract, then the power side will pick up the difference."

So, there's a great, great deal of *debt* on the books today at Reclamation. I don't remember what the numbers are right off, but it's in order of magnitude of about 70 percent obligation on the *power* community to retire. So, of the total water costs that have to be repaid, I think it's in the 30, 40 percentile, is what's deemed to be the ability of the water users to repay, the balance is going to come from power revenues. That creates a great deal of consternation, and people in the Congress today see that the power users ought to be making the subsidy, irrigation subsidy, as it's been akin to, that they ought to be retiring that concurrent with the retirement of the *power-associated* cost for building the powerhouse and the generating equipment and all that.

Congress hasn't seen it that way, and they said very clearly in a number of pieces of legislation that the power *debt* associated with the power facilities has to be retired first, with interest. That debt which is associated with irrigation over and above the irrigators' ability to repay takes a secondary priority and without interest to be repaid. There are those in Congress that say this is not fair. Well, you know, that's up to the Congress. The will of the Congress will determine that, and that's not my point to judge, but right now the power community is bearing a great deal of–or *will* bear over the period of years of the obligation of our water facilities. That's fine. Congress authorized projects with power facilities to make those projects, or the sale from those power facilities, to make the projects financially viable. And, you know, that's just good business. So what?

Storey: When you were doing the power accounting–a lot of money involved.

Checks and Balances in the System Designed to Protect Reclamation, the U. S. Government, and the Taxpayer

Boyce: Millions of dollars, order of magnitude probably 50 to 60 million dollars annually, upwards to 80 million and more now at Hoover.

Storey: The question I guess I want to ask–where are the safeguards for Reclamation? We're using the *power* consumers' meter readings?

Boyce: Um-hmm.

Storey: I'm a little larcenous . . .

Boyce: No, no. Let me see if I'm clear on your question. Are we using the Company XYZ's meter or are we using our own meters? We're using government meters. These are meters that the government installs, maintains, and reads. We do not use–

Storey: But you were saying you were using the same data that you collected for–

Boyce: But remember, when I was working at Hoover for Los Angeles Department of Water and Power, they were an *agent*. They were the operating *agent* for the government at Hoover. So the meters that they maintained and all that, they physically belonged to Reclamation. Even though we read the meters–

Storey: Even though "we," Los Angeles?

"So there were a lot of checks and balances, because not only was Reclamation looking over their shoulder, the people that they were operating *for*, like the city of Anaheim or Burbank or Pasadena, was also seeing all those same meter sheets. They saw all of my worksheets that I prepared. Everybody saw everybody else's work. And before the power bill went out, each and every month, I physically would *call* my counterpart in each of the nine or ten contractors, power consumers, that I dealt with. . . ."

Boyce: We, Los Angeles, read the meters, we *read* them as the agent for the United States, and those meters were all verified by Reclamation employees. So, yes, they were the operating agent and, yes, they were a customer also, but they were one of nine or ten customers there, and they were operating for a number of the other customers. So there were a lot of checks and balances, because not only was Reclamation looking over their shoulder, the people that they were operating *for*, like the city of Anaheim or Burbank or Pasadena, was also seeing all those same meter sheets. They saw all of my worksheets that I prepared. Everybody saw everybody else's work. And before the power bill went out, each and every month, I physically would *call* my counterpart in each of the nine or ten contractors, power consumers, that I dealt with.

Storey: This was when you were doing the power accounting for Reclamation.

Boyce: Reclamation. I would physically get on the phone, and I would call my counterpart at the Colorado River Commission of Nevada and say, "Here are the numbers that I have," and they would be looking at meters on, basically, the other side of the fence. Knowing the loss factor for the distance and all that, we would come together on what the actual usage was, and there would be times that they'd made an error or I'd made an error, but no bill went out until we tied all of the numbers together so that we knew exactly what had been produced at Hoover on a gross basis, we knew what the losses were, and we knew what we had put on the transmission line right at the revenue meter point. I knew all of that information. *They* knew what the revenue meter point amount was as far as energy, because they were monitoring it on the other side of the fence. And so maybe a slight error–I mean, in a thirty-day period, twenty-four hours a day, kilowatt hour meter, you're not going to see in a matter of a few nanoseconds between the time the power got from meter A to meter B across the fence line, there's not even going to be a number, a digit, difference in the power. But we would literally–I would check out with each and every one of those companies and say, "Here are the numbers I have."

"When we agreed on the numbers, then the bills went final and they went out the door. And they all went out by certified mail so I knew exactly when they received

them. The bills had to be out not later than the tenth of the month, and they had to be paid by the thirtieth of the month. . . ."

There were just a whole series of checkpoints. The various meters cross-tied to each other. There was supplemental meters. It's a lot like cost accounting does to general ledger. It's the same process. You had supplemental meters that all had to tick and tie together, and they would validate another meter. So, there was a give-and-take dialogue until we agreed on the numbers. When we agreed on the numbers, then the bills went final and they went out the door. And they all went out by certified mail so I knew exactly when they received them. The bills had to be out not later than the tenth of the month, and they had to be paid by the thirtieth of the month. So the contractors basically had about twenty days to get their checks *processed* and back out in the mail to us.

That's why the comptroller general lost his job in Nevada, because at that time, instead of the Colorado River Commission of Nevada, who is a state agency, whose office is in Las Vegas, the bills would be mailed to them. They would go through and do whatever verification process that they did internally with *their* subsidiary customers, plus they would have to send all of their documentation to Carson City, which is where the comptroller's office was. That check had to be cut and sent out of Carson City. Well, somewhere in the line of that process of going from our office to the Las Vegas office, from the Las Vegas office to the Carson City office, and then the check coming back to us, it broke down, and that's what they found, that they had an error.

Here again, you got to know people in these various companies intimately by phone, because you talk to them throughout the month and certainly at month end, and I dealt with the dispatchers at Hoover, I dealt with the dispatchers at Parker-Davis Dispatch Center, I dealt with the Los Angeles dispatchers in downtown Los Angeles, the Metropolitan Water District's dispatchers, Southern California Edison's dispatchers, and the Arizona Power Authority's dispatchers. So I had quite a telephone network of individuals that I knew by telephone, subsequently met most of them. I think I've met them all, actually, over the years, and am good friends with a lot of them today. Some of them have moved on or they're retired, and some are still around but they're in different capacities like I am.

Storey: In your power accounting, were you doing the power accounting for Navajo? It maybe wasn't on line yet.

Did the Power Accounting for the Navajo Generating Station When it Came On-line

Boyce: Ultimately, as it came on line, *I* was responsible. I did Hoover's power accounting, I did Parker-Davis power accounting, and then I did Navajo after it came on line. So I've done every bit of the power accounting. Matter of fact, I was involved in the actual establishing of the power accounting accounts for Navajo. Parker-Davis and Hoover were already in place when I hired on, but I was on the ground floor for Navajo.

Storey: Well, I'd really like to continue, but we've gone over two hours again.

Boyce: Again.

Storey: Let me ask you if you're willing for the information on these tapes and in the resulting transcripts to be used by researchers.

Boyce: Yes.

Storey: Good. Thank you.

END SIDE 2, TAPE 2. AUGUST 28, 1997.
BEGIN TAPE 1, SIDE 1. AUGUST 29, 1997.

Storey: This is Brit Allan Storey, Senior historian of the Bureau of Reclamation, interviewing Harvey W[alter] Boyce on August the 29th, 1997, at about nine o'clock in the morning, in the Denver office of the Bureau of Reclamation at the Denver Federal Center. This is tape one.

We were talking about power accounting, and you mentioned that you did collections. Could you tell me what that involves, please?

The Collections Process

Boyce: The collection process was a person identified in finance that all of the incoming checks for payment of whatever was being billed received, and that person verified the check against the outstanding bill for collection that they maintained until the payment came in. Once they had verified that the check was correct for the bill, they would go ahead and stamp it for deposit where we make up a bank deposit and take it to the bank that was acting as the Federal repository for the United States.

What Would Happen If a Payment Did Not Match a Bill

If the check was different, then it was the responsibility of the collections officer to note that it was different and take it to the person that had initiated the bill out to the customer, find out whether or not, (a) that bill had been revised and a copy had not been provided to the collections person, or whether, in fact, the bill was paid in error. Then it would be not the responsibility of the collection officer, it would be the responsibility of the person generating the bill to contact the party that the bill had been mailed to, to find out why there was a difference and get it resolved.

In any event, the deposit would be made, generally go ahead and make the deposit up with a notation on the bill for collection that the collections officer had, that what had been paid, what was the outcome of their investigation, so there was always a track record there. But the check would be deposited. It might be noted that it was deposited as partial payment on a bill, if it was, in fact, underpaid. It was not *common*, but there were a few instances where a customer, power customer, receiving a bill *might* disagree with the United States.

What Happened When a Customer Disagreed with the United States over a Bill

In order to protect their contractual rights, even though the amount of the bill was in question, the customer, in order to keep their contractual rights intact, would have to make payment, and they would make it under a term called "protest." This basically said, "I've paid to protect my contractual rights, but I disagree with the amount that I had to pay." Then that would have to get resolved between the United States and that party.

There were instances where customers were either not going to *pay* their bill or were going to pay it after it had been resolved. It was really the responsibility of the person issuing the bill to explain to that customer the potential outcome and jeopardy they placed their contract into if they chose not to pay it or to pay it after resolution. And, yes, you could pay it after resolution, but then it constituted a late payment, you'd get penalties, interest added on to that. So, generally most customers–I can't even recall that I ran into any of our customers that did not see the wisdom of at least making the payment, even though it was under protest, but at least paying on time to protect their contractual rights. Then they would subsequently get resolved.

"It was absolutely a priority task, once a bill went into dispute . . . that it get resolved quickly, because . . . [if] they had paid their bill according to what was on it, even though they disagreed with it . . . That had the effect of ceasing all accrual of interest and penalties on *their* part, but it did put the United States in jeopardy in the fact that if there was, in fact, an error in favor of the customer, then the United States had to remit the balance plus interest. So it had a very high priority in that person's life once that bill went under protest. . . ."

It was absolutely a priority task, once a bill went into dispute or under protest, that it get resolved quickly, because the longer it stayed in a protest status, there were still interest and penalties accruing if either the United States owed them money back, the customer money back, or of course, they had paid their bill according to what was on it, even though they disagreed with it, and they paid it under protest. That had the effect of ceasing all accrual of interest and penalties on *their* part, but it did put the United States in jeopardy in the fact that if there was, in fact, an error in favor of the customer, then the United States had to remit the balance plus interest. So it had a very high priority in that person's life once that bill went under protest.

You Could Not Do Billing and Collections at the Same Time

As a accounts receivable or collections clerk there, because of the accountability requirements, I could not be issuing the bill as well as receiving the cash. That's just not good fiscal practice. So, if I was doing power billing, I was not acting as a collections officer. If I was acting as collections officer, I was not doing the power billing. It was one of those situations that part of my tenure there I was doing power billing, so I was not a collections officer. Part of my time there, my tenure, was collections officer so I was not doing power billing. Somebody else was doing that. So I didn't do both jobs concurrently. It just fiscally was wrong to do it.

It's not good management, and I think that there are some penalties associated with doing that kind of stuff. So, we always made sure that there was a separation of those two roles in finance.

Worked as Imprest Cashier, During Which Time the Government Went from Bonding its Cashiers to Indemnifying Itself

The interesting thing that I found when I first hired on and became an imprest cashier, which meant I used to pay the travel claims and things like that, as well as doing collections, is I was actually bonded by Lloyds of London. During my tenure in finance, the United States decided that it was going to basically indemnify itself, so the bonding criteria was dropped and, of course, also the cost associated with having people that were receiving cash or handling cash, such as imprest cashiers, that criteria went away and the costs associated with bonding then went away. But I found that interesting that we changed our philosophy, that the government changed its philosophy during that period of time that I was involved in it.

Storey: That would have been in the seventies.

Boyce: That would have been in the seventies, yeah. It would have been during the seventies, not into the eighties.

Storey: Now, let's see. Basically everything we've talked about today and yesterday is the period '72 to '77, right?

Boyce: That's right.

Storey: Tell me more. You already answered part of my question. I guess I have a larcenous soul, but these safeguards–

"Is there an opportunity for people to make mischief? Oh, I suppose, but I believe it would require some collaboration by at least two parties. The third check that most people probably weren't aware of . . ."

Boyce: Yeah. Is there an opportunity for people to make mischief? Oh, I suppose, but I believe it would require some collaboration by at least two parties. The third check that most people probably weren't aware of is that if the cost accountant and the fiscal accountant were doing their jobs correctly, the deposit of cash by the collections officer was independently verified to match the original bill for collection that went out. So, the power accountant, being the person that generated the power bill, one of the copies of the power bill was the accounts receivable copy. That went through a posting process, and at the end of each month, the fiscal officer would be looking to make sure that *all* the receivables had cleared.

In other words, the cash coming in to the collections officer, they went through an accounting transaction coding process that would cause the financial system in the automated process to go in and say, "Here's the cash that I received (or

the check that I received). I have an outstanding receivable out here associated with this deposit." And it would match those up.

". . . not every person involved in the billing, the accounts receivable, and the collections had access to all the reports. So there was a hierarchy of management reports that were being looked at generally by the chief of fiscal accounting, and only that person. . . ."

If the amount being deposited was a different amount than the accounts receivable, of course, it would show up as an exception or an error report, and the fiscal officer would be seeing that. Because not every person involved in the billing, the accounts receivable, and the collections had access to all the reports. So there was a hierarchy of management reports that were being looked at generally by the chief of fiscal accounting, and only that person. One of their checks and balances is did all of the receivables clear out, and if not, why not, and they would go through that investigative process.

". . . it wasn't until I actually did fiscal accounting that I became aware of the fact that here is another set of reports that is, in effect, almost the third complete check and balance. . . ."

So, there are a set of checks and balances in place so that no one party–sure, after you get to know the system and you know where to go to look, you could probably become devious, but the likelihood of most employees knowing that was quite simply not well publicized. I mean, *I* didn't realize that until I got a lot further along in the organization and a lot further experienced in all the facets, and it wasn't until I actually did fiscal accounting that I became aware of the fact that here is another set of reports that is, in effect, almost the third complete check and balance.

So, like I say, I guess knowing what I know today, I could probably go back and be somewhat larcenous, assuming that I was ever back into the position where I would be generating a bill, be collecting a bill, be depositing a bill, which, you know, that's not my role in life, and I just wouldn't be in a position to do that today. But, obviously, the people on the top have a broader perspective of it than the people down in the trenches. That's probably indicative of every business.

Obviously we hear about indictments and that, but I don't recall hearing a great deal of Federal employee indictments relative to the absconding of cash. You hear more of employee indictments from abuse of authority and credit-card usage or something like that, but never, in my recollection, can I recall that a collections officer was able to subvert the system and get around it. I don't have a great deal of nervousness about that being done.

Storey: How long did you do each of these things? You did power accounting; you did cost accounting; you did collections.

"As I said earlier, I was very fortunate that I happened to be in the right place at the right time. I was able to progress from position to position quite rapidly, and so I had probably a minimum of a year in any one of those capacities. . . ."

Boyce: Here again, I probably spent about roughly a year to a maybe a year and a half in each of those phases. As I said earlier, I was very fortunate that I happened to be in the right place at the right time. I was able to progress from position to position quite rapidly, and so I had probably a minimum of a year in any one of those capacities. Power accounting I did off and on. Even though I started off there, ultimately I trained my replacement. It would be my responsibility if my replacement wasn't there, ill, or whatever, to pick it up and do it for that particular month or at least do part of the process for that month.

So, the cross-training made me more flexible in being able to jump in and take over a functional area as a substitute, and that's probably more beneficial to me in the long run because it gave me a broader perspective of the organization and the way the system worked. Certainly, I feel fairly confident and comfortable in sitting down literally in any of those subject areas and going head-to-head with most people in discussions on it because of my experience.

Now, granted, the process has been more streamlined, certainly, from the hand system to where we are in the automated system, but the principles are still the same, and most of our ledger accounts are still the same. They may have been expanded or additional ones added to gain greater refinements, but even this many years later, twenty-some years later, I still find that I can pick up a set of books or some reports out of finance and, without much difficulty, can read them and clearly understand what's going on.

Storey: What's the hierarchy of skills? What do you start out with? What do you progress to next?

Boyce: I think, really, from the accounting perspective, most people, unless they are a graduate accountant coming into the system, which, in my opinion, is a detriment to them, because a graduate accountant walking in, sitting down, doing accounting-type work, while that's, granted, what they're trained in, does not necessarily give them a full, complete understanding, of what the accounting technician, who is the clerk, basically, that is responsible for doing the labor-intensive work of generating journal entries, of generating bills, doing the collections, doing the accounting transactions, that clerk probably has a better understanding of their corner of the world than the accountant.

The accountant is trained, basically, to look at the broader perspective, and I think that's why I was fortunate because I started off as an accounting technician and was able to work my way up through the progression as an accountant and as an auditor. I only see that as a positive aspect, because it gave me a *much* broader and, I think, a very early-on greater appreciation for the way the system worked. Government accounting, by its nature, is a very complex accounting process. It's not as straightforward as General Motors even would be, I'm sure. It's certainly not as

straightforward as the accounting theory taught in the universities. I mean, that's a fairly clean, systemized theory of the way the world should work, and unfortunately the world doesn't work like theory.

Government accounting, even in my discussions with auditing firms, because all of our accounts, certainly our power accounts, have always been subject to independent audit, either by inspector generals, by General Accounting Office, or by independent auditing firms like Peat, Marwick, Coopers and Lybrand. I've probably trained a good set, I'd say a good six or seven sets, of brand-new graduate auditors that have gone to work for these various Big Ten–actually, even Big Three national and international accounting firms in governmental accounting as they've come to audit the various projects that *I've* been responsible for. While their accounting skills, and certainly as students that are about to take their C-P-A exams, they're very knowledgeable from the theory part, it's quite an eye-opener for them to have to sit down and literally do the true auditing work of verifying and vouching transactions to the next hierarchy of reports, and from that report to see it roll up all the way to the top.

So, there's a great deal to be said for starting off in the trench and learning how to crawl out of that trench and work your way up. So I don't begrudge people coming in at the higher level. That's certainly not that, but sometimes I think they maybe are the ones that are suffering the deficiencies there rather than the person who starts on the bottom and works to the top.

Storey: You've raised an interesting topic. Reclamation, because we have the repayment responsibility and so on, I've always wondered, is our system even more complex than normal governmental accounting? Do you happen to know?

Federal Accounting

Boyce: I don't know that I would make that statement. Reclamation, of course, is now using the Federal Financial System. I know when we went to the FAST system, that was not, shall we say, the standard governmental accounting system. There has been, over the years, a policy, a need, a requirement, somebody's desire, I don't know, to try to standardize government accounting, and that's from agency to agency.

"The detail of how the accounting is done, the nuts and bolts cost accounting, has been, in the past, somewhat left up to the agency to make that determination. As long as it ultimately rolls up to satisfy the criteria the Treasury, GAO, OMB puts on it, those people really don't care as to the nuts and bolts of how you got there. They just want to know that your documentation will support the numbers that you're providing to them. . . ."

Now, there are OMB [Office of Management and Budget], there are GAO [Government Accounting Office] requirements, there are Treasury requirements, but those are broader perspective hierarchy, or a higher hierarchal level of reporting requirements. The detail of how the accounting is done, the nuts and bolts cost accounting, has been, in the past, somewhat left up to the agency to make that

determination. As long as it ultimately rolls up to satisfy the criteria the Treasury, GAO, OMB puts on it, those people really don't care as to the nuts and bolts of how you got there. They just want to know that your documentation will support the numbers that you're providing to them.

So, you know, that gets us into a perspective that our financial people have multiple masters to serve. They have to serve the Congress. They have to serve OMB. They have to serve these other agencies that we report to on a calendar–and fiscal-type year basis, as well as satisfy our customers and be able to satisfy our customers' request for independent audit. Certainly we do that. That perspective of looking at the world is not necessarily the same perspective that a plant manager who's trying to manage his budget is looking at the world. He has a checkbook. He needs to plan his work, schedule his people's time, to conform with what his budget permits him to do.

A great deal of the work that I'm now focused at is how to find some marriage between our outward corporate perspective that we portray to the world and to the Congress and the Treasury, and marry that up with how do we better serve our internal customer, that being our plant managers, regional directors, and that.

Regional directors even to some degree are probably very hierarchical attuned because they basically want to know what's my budget and what have I spent in total? They don't want to know how many widgets we bought or installed at a particular powerplant. But certainly the powerplant manager wants to know how many widgets were bought and installed. So there's a whole gamut of customers that has to now be served, not just those that we all used to be just bowing and serving to of the Congress and the Treasury and that. Our managers are now calling for more internal scrutiny. They want to be more fiscally responsible for what they are. Certainly our customers are requiring that now.

I think that's the genesis, really, as to why we're going to the Government Performance ~~Requirements~~ [and Results] Act and the GPRA and that. Certainly that's why we have had customer groups come to us and say, "We need to know what your costs are down at the very minute level." These customers, their budgets are shrinking just like the Federal budgets are shrinking. They want to maximize the impact that they get for every dollar they've spent. So when we present them with a power rate, they want to know what's behind the power rate. They want to know how much are overheads. They want to know how much are real correct costs. So now the plant manager needs to know that, because he's getting asked by the customers.

The plant manager, in turn, turns around and asks finance and the power people, "What's it costing me to do that?" Because of our centralized–to the regional, to the corporate level that we have in our finance, we don't have that accountant sitting there just at the beck and call of the plant manager *in* the plant that can run those type of analyses any longer. So we have to take a more corporate perspective of it, and that's really what my new responsibility is, is to be able to provide that kind of an answer to the plant manager that says, "In 1996, this is what it

cost me for every kilowatt hour of energy that I produced to perform maintenance and to perform operational actions."

This is exactly what the customers are now asking us, and it's this new age of accountability that really has occurred within the last five-year span that we're just having to do a better job of being responsive to our constituency. Didn't have to be that way years ago. Of course, power rates were low. I mean three-mil energy, you could buy it everywhere. In this day and age, power rates from the Federal sector are rapidly approaching what the private sector is. So the question is starting now to come from the customers, "Why should I buy from you, the Federal government, when I can buy from company XYZ just as cheap?"

In order to survive in our environment as a quasi-utility, we need to be able to demonstrate that we're still selling a good product at the cheapest rate. I think it's been proven, at least certainly in the last few years that I've been involved in it, we are now demonstrating that Reclamation's cost for power production is certainly still an industry leader. When the customer sees the power rate, *they* need to understand that not only does that power rate include Reclamation's cost, but it also covers the power marketing administration's transmission cost, maybe other things, environmental constraints, endangered species. All of these things are now being laid onto that rate. Irrigation assistance.

All of these things go into the total power rate, but are those really our costs? And the answer, we're finding out, is, no, and, quite frankly, there's a marked demarcation. But up until 1995, we didn't know that. We couldn't *prove* that. We all suspected it. We all had that nagging thing down in the pit of our stomach that says we *know* that we're still the best in the industry, but we have no way of absolutely saying and showing in black and white to the Congress or anybody else that, in fact, we are. Now today, happily, we can do that, and that's just an evolution of our accounting process and our responsiveness to our customer base.

Cost File Structure Administration

Storey: In our first interview, you talked about cost file structure administration. Is that cost accounting, or is that something different?

Boyce: Cost file structure administration is the foundation upon which accounts are performed. The cost file structure is nothing more than the establishment or assigning of a number that is unique to that particular thing that you're going to do, operation of a generator or powerplant operations, maybe even broader, but we could even break that down into all the generators–

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Storey. –each generator conceivably could have its own number.

Reclamation's Accounting System Could Be Exceptionally Detailed

Boyce: Could have. And it's just, again, a matter of how fine we want to manage our costs. There's a cost-benefit analysis that has to be looked at. I mean, do we account for every bolt and nut and cleaning rag that we use on a generator? Do we need to be *that* precise, or do we really care about the total bolts and nuts and rags that we use to clean *all* the generators in the plant? Well, we found that the customers and the benefits gained by looking at it from a *plant* perspective is certainly the most reasonable way to approach it. So, that's the level of detail that we go.

But once that level of detail has been established that we're going to account to, then numbers or some way to uniquely identify those specific costs that we're going to monitor, we have to come up with some unique way to say this dollar is only attributable to cleaning rags for generator maintenance. So to do that, we assign it a cost authority, and that is the cost structure.

So, that was principally what I was doing initially when we started the conversion to the FAST system, is literally getting all of those various numbers. I dare say that there's probably a printout that's well over a couple of feet thick throughout Reclamation, probably even larger than that by now, that just itemizes all of these individual numbers. I was responsible for one particular region's, and that report in itself, I know, was a good ten or eleven inches thick, double-sided, because there's a lot of detail that we keep. We *do* keep a lot of detail. And that's all that structure was, but that structure has to be maintained. It can't be changed arbitrarily. It needs to be within a standard numbering scheme. All of those, of course, had to be a matter of policy decision that was made by management. So, that's really what the structure of maintenance was all about.

Cost Structure/Eighteen Digit Numbers

Storey: This is the cost structure number that we have to put on all our travel vouchers?

Boyce: Right.

Storey: Eighteen digits broken down in specific kinds of groupings and so on.

Boyce: Right.

Storey: And it changes yearly.

Boyce: Actually, it appears to change yearly. More often than not, the only thing that's changing yearly is the fund symbol, which is only three or four digits.

Storey: The first three.

Boyce: The first three. If your assignments or where you're charging your time to, if you start charging your time to a different thing–for example, I have maybe seven or eight or nine different cost authorities that I spread *my* time over in an eighty-hour pay period, so I have a separate number for each one of those activities. In some cases, they are a non-specific year fund. In other words, the same fund symbol occurs year

after year. In some cases they are just very year-specific. And so the fund code will change, and that's only three or four digits of that *whole* eighteen-digit number that we deal with.

Storey: What are the other codes?

Boyce: The other codes, of course, it will identify what project. Actually, even going back further than that, it will identify what *region* that cost authority is associated with. It will identify what *project* within that region, and then it will also identify what general ledger, if you look in the cost file structure. Now, the code number that *you see* is not necessarily the entire whole correlation, because that number, when it was established in the cost file structure, it was keyed to a general ledger. So when you write it out, your number that you look at doesn't tell you what general ledger it's going to, but in the cost file structure, that keys it to that particular general ledger that that ultimately will roll up to.

Then it has in there what they call the main cost authority, which is, again, a hierarchy, a roll-up point, that would be identified, for example, in the O&M expense account or in the *travel* account or in the power revenue account. That will have a specific cost authority that tells it when it's established in the cost authority, that it goes to the power revenues account, General Ledger 450. It is a *power* revenue as opposed to a miscellaneous revenue or a water revenue or an interest revenue.

Then it will further break down into subaccounts. In the case of operation expense, maybe that's supervision and engineering or maybe that's travel. Maybe it's maintenance of gates. All of these, depending on how fine the individual region project wants to do their accounting, as you move out into that cost authority and get out of those little numbers that generally are always zero, well, those numbers can be used to help get a more specific refinement of, let's say, maintenance on a gate. Maybe it's temporary maintenance. Maybe it's permanent maintenance that they do. Maybe they're trying to identify specific costs associated with doing maintenance on that gate that a customer is going to advance the money for, so, out of the total cost of maintaining that gate, they need to show what's the United States' cost, and they need to show what the customer is responsible for.

All of those smaller codes, as you get way out into what they call the nine way and the class and those type of things, are used really to add finer and finer refinements to what you're going to do. All of those numbers will roll up to a hierarchy. In other words, I can look at the actual transactions if I haven't coded out that close. Quite frankly, every transaction goes into the cost *structure* or into the cost accounts.

There is a report that shows *every* transaction, and that's a huge report, but it will tell you what day that transaction was made, what caused that transaction, whether it was a journal voucher, whether *payroll* was charged to it, whether *travel* was charged to it. All of these things help give the financial manager a complete picture and is able to, you know, when we get requests–well, how much was your travel expenditures for a given year for a given plant, or for a given employee? All of

those things are *found* by the way those cost authorities are filled out. So when you code your time, you're telling *somebody* a lot about what you did that day, whether you charged *payroll* that day, whether you were on *travel* that day, whether you attended *training* that day. All of that stuff can be decoded, and a lot can be found out about what you as an employee did on any given day or any given hour.

Storey: But what makes it manageable?

Boyce: It's a huge number.

Storey: If you go into detail, no person could even read it.

Boyce: Well, here again, and this is going back to my earlier statement about the corporate perspective as opposed to the cost account perspective, the fiscal officer probably can read it and figure it out. Is he going to take the time? Oh, no! Is the cost accountant? Probably not, unless there's an anomaly or there's a reason to investigate it. Then, you bet. Then they'll get right down to literally looking at every transaction code.

While I was working in finance in the cost section, as we did each weekly update, one of the things that I did is assist the fiscal officer in going through and analyzing, transaction by transaction, why an error occurred and literally to the point of–we used to do what was called T accounting, which was basically draw the letter "T" on the piece of paper, or a set of letter "T"s on the deal, and taking the program transaction codes that, like an accounts receivable action code, will cause the program to generate certain transactions that the employee never makes. The software, the programming of the software, will do that.

For example–see if I can even remember–to enter a power bill, when I would code an accounts receivable for a power bill, that would cause a debit to the accounts receivable account and a credit to revenues. When that power bill was paid, it would credit the accounts receivable account, thereby bringing it to a net zero, and it would debit cash. So, now, after we have gone through the cycle, what we have is we have *cash* showing an increase in the amount of the dollars we actually received for the power bill, and we show an income matched up with that power bill.

The other side of that transaction–we talked about this briefly yesterday–is for that *income* that we're showing and that *cash* that we're showing, what were the expenses? Well, then we go over to General Ledger 451, and we'd see a debit to operation and maintenance cost accounts, General Ledger 451, and we'd also see a reduction in the cash, or the appropriations, in this case would be somewhat synonymous, that paid for that.

So, while the picture at the cost level is very complex and very finite as far as the actual things that occurred, you can roll that back up very quickly into generically what happened. We generated power. It cost us money to do that. We paid those *costs* from *cash* or from appropriations. We sent the customer a bill. We established a call for that money from the customer in accounts receivable. The customer sent us the money. We deposited the money. We cleared out the *call* on the money. We

said we have an income received now. We have the expenses accounted for the cost, and we have the cash netting to either a profit or a loss, because either it cost us more money to generate the power than we sold it for, which is not what we normally do in the broad perspective, but just for this example, you could, actually, in a particular accounting period, maybe it costs us more to generate power from a specific generator than we actually got in total dollars.

The reality is, that doesn't happen because our rates have other components in the rate base besides just the O&M component. And so the power repayment study is nothing more than an after-the-fact tool that takes the income accounts from our financial system, takes the cost accounts broken out by general categories of operation expense, maintenance expense, interest expense, all of those things, debt retirement, and puts them all together in one report format that says, "Here's what all of our expenses were, here's what we generated as far as a product, kilowatt hours of energy capacity, here's what we owed back to the Treasury, and here's what we paid." And that's all the power repayment study does.

A lot of people have the mistaken idea that the power repayment study *literally* changes the financial accounting system, and it has no connection at all. It is nothing more than a compilation of selected accounts out of the accounting system, selected power statistics from an entirely different process, all married together onto one report form that says, "This is exactly how we performed. We produced and sold so much of a product. It cost us so much to do that. We received so much income, and we distributed that income to pay off our expenses and to repay Treasury for the loan they gave us." That's nothing more than that, other than the fact–and this is where there seems to be a great deal of mystique about a power repayment study–it is nothing more than the tool that says that the power rate that is causing that revenue stream to occur is (a) either sufficient; (b), not sufficient; or, ©) *more than* sufficient to satisfy the requirements of the project.

And recall I said yesterday that we are a cost-of-service agency, as is our power marketing administrations. Therefore, when they do a rate study, the study is nothing more than using the power repayment study software computer program, extracting those components from the financial system, from the statistical system, and putting them into one box, so to speak, or answering those very questions. Is the revenue stream sufficient to meet our costs? Is the revenue stream, which is the single derivation of our power rates, therefore are our power rates sufficient, more than sufficient, not sufficient to satisfy our revenue requirements?

If the answer is, it is sufficient, but not more than sufficient, then the power rates are fine. If the answer is that it is insufficient, we are *not* recovering an adequate amount, then the power marketing administration–and my role in the past, when I was in charge of power repayment and rates, was to initiate the rate adjustment, the power rate adjustment, which, of course, is a public process that the PMA [power marketing administration] has to go through.

So it all has checks and balances. A lot of folks are not cognizant of it, or they have somewhat distorted ideas of what these various things do, but we're not quite

that sophisticated that a change to the power rate really impacts, directly impacts, a change in our accounting system. They won't. Only over time and looking at the historical performance do we find out whether or not we're doing our job correctly or incorrectly. (Storey: Uh-huh.)

It all is very circular when you get right down to it, and that's, again, why I feel very fortunate because I've had such a *broad spectrum* in my career of working not only, like I said, you know, I started the process as a meter reader. I then became the power biller. I then did the accounts receivable. I then did the cost accounting. All of these things are just one facet of this whole circular process that leads to whether or not we, as Federal employees, are doing our job in producing power, delivering it to the customer, and satisfying all the requirements that Congress has put.

I probably have seen *more* of the total perspective of that process in my career than most employees ever will in their entire career, and that's why I enjoy my new job, because now I'm using every facet of that learning process to be able to go before senior managers and say, "This is what we're doing," and do it with a great deal of confidence, because I can demonstrate factually that we either are or we are not performing, and that our management is effective in that we are being able to now start the feedback process of our work, where we can now start telling our employees, our plant managers, "You have an anomaly in this particular area of your cost," or, "Yes, you have an anomaly, but here's what's causing it." It may be one of those temporary anomalies that's caused by maybe a catastrophic failure of equipment that causes a *peak* in the cost for that particular accounting period as opposed to over time maybe it's quite normal. But until we've gone through and done the analysis and looked at a number of years of performance, we're not going to know that, and we haven't known that in ninety-two years of–in my certain knowledge, I've never seen any study yet that at least told our powerplant management how they were doing, and, more importantly, how they were doing over the long-haul process, as opposed to a snapshot of a year at a time as a year at a time, but, more importantly, how they, over a ten-year period or a five-year period, how are they performing? Are their costs increasing? Are their costs decreasing? Are they staying the same?

All of these things now we are starting to really look at and analyze, and, of course, this is what the Congress is requiring under GPRA, this is what our customers are requiring–accountability. And accountability has been driven by the fact that *our* costs have gone *up* just like everybody else's in the utility business have gone up.

We are no longer–well, we are, but it has not in the past been clear to the customers that we *are* the cheapest game in town. In some instances, we *may not be* the cheapest game in town, but over the long haul, Reclamation, as a whole, even over a region as a whole, we *are* the cheapest game in town. We are now able to stand up and say, without even blinking an eye, "Yes, we are, and we can prove it." And that, I think, is probably the most notable thing that I've been associated with, certainly in the latter part of my career, is to achieve that level of confidence that we can hand to the commissioner, or that we can hand to a regional director or to a plant manager and say, "You bet. I am doing the best job under the circumstances, and I

am still the cheapest game in town." Yes, we can do better because now we have a way to look back at ourself, inspect ourself, critique ourselves, and say, "Where can we do better?"

This is this thing called cost containment, that our customers keep screaming at us that we are not being cost-conscious. Well, now we have the indicators, we have the tools, for management to start looking at what are the specific anomalies that are causing their costs to go askew. And we haven't done that in years. Individual managers over the years probably have done it to some degree, but, remember, we no longer have that cost accountant *in the plant* dedicated solely to just looking at *that* plant. We just don't have that luxury anymore, nor does anybody else. I mean, I'm not saying we're any different than industry, but at least we are getting a way of now coming back and saying with a high degree of assurance that we are doing a good job and that we *do* have a way to analyze our own performance and provide feedback so ~~that errors–or not errors,~~ that processes can be corrected, become more efficient, that areas where we were spending maybe too much time or too much money on can be modified to where we redirect the time and the money to the areas that really need it most.

That, to me, is quite an accomplishment, certainly for Reclamation, over fifty-eight powerplants to do that, and now to be able to stand up and say we are number two in the nation for providing hydroelectric energy to our customers. To be ranked up in that top-five category as the largest energy producer, to be ranked in the category of one of the cheapest, and to back it up with fact rather than instinct and assumption, I think, is a high credit to the foresight that some of the past Secretaries of the Interior and certainly Commissioners of Reclamation have had in the last five-, six-, seven years, that we have started to focus, we have started to be more conscious and aware of what our constituency is *demanding* of us–not just asking, they are *demanding* of us–and we are being responsive to that.

Sure, we can always be better. We're not a Utopia, and the mere fact that we're doing it just says we're trying to reach utopia. I don't think Utopia can ever be achieved, because I think there's always room for improvement, but at least now we're starting to get the tools in the hands of the people that can make those improvements, and we haven't done that in the past, so I think this is just a major accomplishment. And certainly, it's indicative of the fact that the vice president presented us with his infamous Hammer Award because we've shown the way. We've demonstrated it. We're now implementing the results of that investigation. We're all very conscious of it, and certainly the Congress is conscious of it or they wouldn't have passed the Government Performance [and Results] ~~Review~~ Act.

So, I think we're on the cutting edge. I think we are right at the cutting edge. I don't think we're riding on the cutting edge; I think we're right at the front of it right now, in my humble opinion. I think we're doing an excellent job of being responsive to those things.

Storey: The other day you mentioned accounts receivable clerk. Is that collections?

Accounts Receivable Clerk and Collections Officer

Boyce: The accounts receivable clerk and the collections officer are two different people. There have been times that I have seen, because of illness or a person not being there–and again, I've done *both* just as a substitute–but generally the accounts receivable clerk and the collections officer are two different people. Again, this is more of the checks and balances system.

The accounts receivable clerk's responsibility is really the maintaining a tickler file, if you will, of the outstanding accounts that are due the United States. The accounts receivable clerk is also responsible to ensure that all of the proper accounting transactions and coding for those transactions are entered into the accounting system. So, the bill preparer might be a third person, and in the perfect world, the person actually creating the bill–in this case, the power accountant–would hand to the accounts receivable clerk a copy of the bill. The accounts receivable clerk would record that, literally make the accounting transactions so that as the financial system is updated it would record that accounts receivable and that income transaction that we talked about earlier.

Then the collections officer, being a third person, would take *their* copy of the bill when it came in–so there's a collections copy of a bill, there's an accounts receivable. What the collections officer would do is, as the check came in, they would take their pending copy, match that up, and they would also go to the accounts receivable clerk and get *that* copy. So that eventually all of those things would marry back together again.

The collections officer would do the recording of the transaction that said, "I received cash," and it would cause the transaction to say that the accounts receivable has now been satisfied, it's now zero. So, actually, the check and balances, three different people in the process. And, of course, the fourth check and balance is the fiscal officer monitoring all of those accounts. So there's quite a check–

END SIDE 2, TAPE 1. AUGUST 29, 1997.
BEGIN SIDE 1, TAPE 2. AUGUST 29, 1997.

Storey: This is tape two of an interview by Brit Storey with Harvey W[alter] Boyce, on August the 29th, 1997.

Boyce: No doubt one person, given the opportunity, could do all those transactions. As I said, I know *how* to do all those transactions. The likelihood is that I would never–I mean, quite frankly, the likelihood is that I can guarantee that would not occur, that I *would* ever be put in a position, or any other employee be put in a position to do *all* of those functions, because that's just not prudent. That is setting yourself up to be suspect of skullduggery.

Depositing Payments in the Bank in Boulder City for Transfer to the Treasury

Storey: You mentioned when you were collections officer, that you had to take things to the bank.

Boyce: Yeah.

Storey: Which bank?

Boyce: In Boulder City, at one time it was the Bank of Nevada, and I think subsequently that was taken over by First Interstate Bank, but that's where we'd go. Every lunch hour, I'd generally go to the bank, because generally we would have deposits pretty much on a daily basis, certainly before the banking day ended, we never left any–rarely did we get cash, generally checks. We would *never* leave checks in the office overnight, unless they came in absolutely the last thing of the day and it was after the banking day, the banks were closed, in those cases.

Of course, as a collections officer, I literally had a safe by my desk that I, and only I, had the combination to, so there was a safeguard for those funds. But we *would not* leave funds, even though they are in the form of a check payable to the United States. And as soon as they came in, of course, they were stamped "For *Deposit* Only to the United States." So, they were not really a negotiable instrument other than *for* the United States at that point in time, but we didn't leave them in the office overnight unless, as I said, it came into the office late in the day and it was after the banking day was completed. Then they would go in immediately the next day.

Storey: So, we had an account at this bank in Boulder City.

How Payments to Reclamation Have Changed over the Years

Boyce: Yes. As a matter of fact, I think probably every region has an account or did at that time. Again, as part of the process of streamlining the system, now we have a lock box in–I believe it's in San Francisco. At least for the Boulder City region it's in San Francisco at Bank of America, and so the customer, when they send their bill in, doesn't go now to the regional office like it used to. It goes to a lock box at Bank of America San Francisco.

Storey: What's a lock box?

Boyce: A lock box is nothing more than a place within that banking institution that all of those receipts or those funds are recorded. In this day and age, we are using electronic fund transfer for capability. *That* is really what our customers are now sending. They don't physically write a check and send it to the depository, Bank of America, into the lock box, but certainly they electronically transfer to the lock box, and that is kind of just what it is. It is a secure address, I guess is a good way to describe it, at the Bank of America, San Francisco, that, once that electronic transaction occurs, then it's targeted to that lock box. In effect, it electronically is *locked* until the appropriate bank officials itemize it and make a report back to our finance office as to all the transactions that were received in the previous banking

day, and the fact that those transactions have now been electronically transferred to the Treasury. This is just more of our automation process.

Throughout the United States, there's not a lot of cash moving around. There's more fund transfers electronically, and so that's why it's been, I guess, identified as a lock box. So we don't have a collections officer, necessarily, in Boulder City. As a matter of fact, I don't think there is one. Yes, we have an imprest cashier, which is typical of every office, but they are not handling bill payments from our customers. Our customers are paying directly to the lock box, which speeds the time sequence from when the bill is actually rendered to the customer and the customer actually, physically, has put in Treasury, in our account, our money. Now, it used to be nearly sixty-odd days' delay. Now it's probably into an order of magnitude of like twenty days, and that's from the time the bill is issued until the cash is in Treasury.

We've accelerated the process immensely by using this centralized depositing process, electronic fund transfers. So there's less and less opportunity now for people to make mischief, because these things have been dealt with.

Storey: Well, for instance, this bank account in Boulder City, is that where we got our money to run the region?

Boyce: No. Again, back during that era, our money to run the region was coming from congressional appropriations on a year-by-year basis. Again, these are more paper transactions. These are not cash dollars per se. These are accounting transactions that are occurring within the Treasury itself. The only thing that was occurring with the bank account was nothing more than back in that period of time before electronic fund transfers where we were taking payments made to the United States via check or even cash, and depositing those into the bank. Those were then, by bank transfers to Treasury, being sent back to Treasury, literally, through the banking system. So the Treasury was recording it.

Again, it's nothing more than looking at kind of those very simplistic "T" accounts that we used to use except on a grander scale, and that is that Treasury, when they would appropriate dollars and transfer them to Reclamation and then subsequently to each of the *regions*, basically they made a loan. So there was a *debt* owed to Treasury. As those deposits came back through the various banks and now through electronic fund transfer, Treasury is receiving cash, if you will, that is an offset to that loan.

So, the details of all those transactions we're keeping in the regions and in our central finance office. Treasury is looking at it in probably the broadest of perspectives. I have paid, in effect, money to Reclamation to do its *work*. Reclamation has sent me money back to offset what I paid. So, the money that we were receiving or that we receive today does not, in *all* instances, go to pay the expenses of the region. What it does is, it offsets the money *advanced* to the region by the Congress through Treasury to do its business on a year-by-year basis as offset by the *results* of doing that business, which is the payments that we receive.

On those projects that have revolving funds or available receipt accounts like Hoover, Colorado River Storage Project, Central Arizona Project, the Congress there is saying to Treasury, "We are going to allow that project to fund itself from what it makes. You, Treasury, don't need to send them an advance or an appropriation at the beginning of the year." *They* have, in Treasury, in another corner of Treasury, an account that's kind of like your own personal savings account where they're depositing their money into Treasury, all right, but it's not going back into the general fund of the Treasury to be available for next year's appropriations. It's going into a niche of Treasury that says, "This is the account for Central Arizona Project, and we're going to hold all the money there, and we will make all the receipts or all the deposits into that particular part of Treasury, and we'll make all the expenditures out of the fund."

Now, obviously, just like your own personal checking account, you can't spend more than you have in the account. So, the congressional oversight is to say, when the budget is submitted for Central Arizona Project, not only do we tell them what it is we *plan* to do and what it's going to cost us to do next year, but we also tell Congress what we have in the bank account in Treasury identified for Central Arizona Project, and we also tell Congress that this is what we anticipate in the next year to be our receipts, our payments back to us.

So, the Congress is looking at what's in the bank, what we think we'll earn next year, and what we think we're going to spend next year, and saying, "Okay. You're authorized to go and do so much work and spend so much money." Those are unique accounts, and they have to be monitored very closely, because we can't, by virtue of the fact that Congress has said, "You can never spend more than you have," we cannot become deficient. And, you know, people can go to jail for violation of that law. I don't know that anybody has, but I mean it's something that makes regional directors and fiscal officers and certainly our chief financial officer very aware and very nervous. They monitor those accounts very closely to make sure that we *never authorize* the expenditure of more money than we have actually in hand, or *will have* in hand, when that expenditure will occur. We just can't do that, a violation of law, and that thing is monitored with a great deal of scrutiny.

Storey: When you, as collections clerk, would put the money in the bank, would the bank then automatically send it to Treasury, or did Reclamation have to say, "Now, Bank, you will send X dollars to the Treasury"? How did that work?

Boyce: Actually, the bank, by virtue of our depositing it there, they had no other purpose other than to transfer that money to Treasury. We, also, by virtue of the fact in kind of like making up our deposit slip, we had a report that we *sent* to Treasury that basically said, "Here's what we deposited into the bank."

So, Treasury was seeing from our perspective what we said we deposited. That deposit slip, obviously, had to match up with the bank, and the bank's transfer to Treasury had to match up. So, again, the checks and balances were in place. We independently said to Treasury, "We sent you, via the bank, X dollars," and the bank had to agree that that's what, in fact, we deposited with them, and *that's* what they

had to report in fact they moved to Treasury. So the checks and balances were always there.

Storey: Interesting. But it was automatic, in other words.

Boyce: Well, certainly from our perspective it was automatic. You know, not having worked in a bank, I don't know what physically they had to do, but it became very transparent to *us.*

Storey: But we didn't have to go back and say, "Send it on."

Boyce: No.

Storey: They knew that when it was deposited in *that* account, it was going to the Treasury.

Boyce: Yes. Just by the virtue of the type of deposit slip, they understood that they basically had to, when they processed their transactions at the end of the day, that those checks, of course, which we had deposited with them, stamped with the deposit stamp that says, "Payable to the United States" in favor of the Bureau of Reclamation, that those checks got forwarded to the bank clearinghouses, and from the bank clearinghouses they got–I guess ultimately those funds moved, in fact, out of the company that sent us the check, they deduct it from their account, and process down through the clearinghouse back to Treasury.

So, somewhere along the line, the *real* dollar, even though it may have been on paper, really did show up in Treasury, and at every month end, the fiscal accountant had to do a report of all of the funds that we received and all the deposits that we made, and that had to be matched up. The Treasury also sent *us* a report *back* on each of those deposits. So, the cycle was absolutely circular again, that it might be maybe sixty to ninety days later, but we would get a report back from the Treasury saying, "Here's a list of the following *deposits* that we have recorded on behalf of that particular region," and, of course, the fiscal officer would sit there and verify that those, in fact, were the deposits that we made, and that they are in the amounts that we said that they were. So, the check and balance process is totally circular. It always had to be cleared, and we couldn't close the financial books at year end until all of those things had been satisfied.

Storey: Do you know what the bank got out of all this?

Boyce: I have no idea. I have no idea.

Storey: I would presume that for performing this service they were getting something.

Boyce: That would be my assumption, because I've yet to see a bank do anything for free.

Storey: Well, you know I'd like to ask you the next question, which is about cost allocation clerk or fiscal accounting. However, I know that your time is limited today, so let me

just ask you whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Boyce: Yes.

Storey: Good. Thank you.

END SIDE 1, TAPE 2. AUGUST 29, 1997.
BEGIN SIDE 1, TAPE 1. SEPTEMBER 29, 1997.

Storey: This is an interview by Brit Allan Storey, senior historian of the Bureau of Reclamation, interviewing Harvey W[alter] Boyce on September the 29th, 1997, in Building 67 on the Denver Federal Center at about nine o'clock in the morning. This is tape one.

You were cost allocation clerk. What's a cost allocation clerk? I don't think we've talked about this yet.

Boyce: I'm not sure a cost allocation clerk is really the right [title]–it was a cost accountant or a cost technician.

Storey: Is that the first job you had?

Boyce: Yeah.

Storey: So we have talked about that.

Boyce: Yes.

Storey: And I'm pretty sure we talked about fiscal accounting.

Boyce: We did that. We talked about collecting, collections.

Navajo Generating Station

Storey: Yes. Let's talk about the Navajo Powerplant and your involvement with it and how that worked and everything.

The Salt River Project Holds Reclamation's 24.3 Percent Share of the Navajo Generating Station in Trust

Boyce: Navajo Powerplant. In about 1974, I guess, time frame, Reclamation, as an alternative to building Bridge Canyon or Marble Canyon dam as a source of power for the Central Arizona Project, undertook, or became involved in, negotiations with five entities, those being the Tucson Gas and Electric Company, Nevada Power Company, Los Angeles Department of Water and Power, Arizona Public Service Company, Salt River Project, who were at that time involved in negotiations leading to the construction and ultimate operation of the Navajo steam plant located on

Navajo lands near Page, Arizona. The United States' involvement in this program was not as an owner, but as a trustee of the Salt River Project, who was named to be the construction manager and ultimately the operations manager for the Navajo steam plant.[16]

This trust relationship basically amounted to the United States having an entitlement to 24.3 percent of the generation output of the Navajo plant on a monthly basis, but it was 24.3 percent of Salt River Project's total ownership. Salt River Project had an additional percentage amounting to maybe another 20 or 30 percent. So while the Salt River Project owned upwards of 50 percent of the plant, the United States basically, through this trust arrangement, offset their–"their" being Salt River Project's–cost equal to 24.3 percent of the total plant output.

Initiated the Payment Process, Which Had to Be Completed in Thirty-six Hours, for Reclamation's Share of Construction Costs at the Navajo Generating Plant

So my role as a early young accountant in Reclamation's process in the LC [Lower Colorado] Region and doing the payments for various construction contracts that the United States was involved in with Central Arizona Project, it fell upon me to pay or initiate the payment process for the United States' share of Navajo Generating Station. During the construction process, this meant that we, literally within thirty-six hours, would turn around from a phone call from the construction agent alerting us to a need for additional funds, to my processing a request for payment from Treasury, voucher, getting that signed off by all the appropriate parties in finance, the certifying officer getting that transmitted to the finance center or to the Treasury disbursing office, and then literally getting that check dispersed to Salt River Project.

This went on all through the construction phase of the Navajo steam plant, the installation of its three generators, the development of the coal stockpile, the development of the fuel oil bunkers for fuel and lubrication, complete on through the actual in-service dates of each of the three units, and then it went into principally an O&M status.

Electric Railroad from the Kayenta Mine to the Navajo Generation Plant

Also involved the payment for the electric railroad that went from the Kayenta Mine on the Navajo Reservation to the generation plant, which is an interesting feature that they built an electric railroad rather than a typical bunker oil-fired diesel electric. That railroad, the ties were basically concrete rather than traditional wood, and then steel rails. That's been a great deal of interest in the United States', especially the Bureau of Reclamation's involvement in there. We've watched a lot of technology advances in the development of that railroad.

"The Navajo [Steam Generating] Project is defined to be the Navajo generating station, the coal supply, the railroad, and the western transmission system . . ."

16. Construction of the Navajo Generating Station began in April 1970. The third, and last, generating unit was completed and placed in operation on April 30, 1976.

We also, as a participant in the Navajo Project, being one of six now, because the United States, even though we had a trust relationship with Salt River Project, we were deemed to also be a participant and signed all the various agreements as a participant in the Navajo Project. The Navajo [Steam Generating] Project is defined to be the Navajo generating station, the coal supply, the railroad, and the western transmission system, which is not western as in Western Area Power Administration, but western as in geographic location, which basically is the transmission, high-voltage transmission system, that lies to the west of Page, Arizona, and begins at the Navajo plant. It's principally a 345,000-volt system, AC, alternating current, and goes into the area of southern Nevada and on into California.

The Southern Transmission System out of the Navajo Generating Station

The southern transmission system basically originates at the steam plant and goes south into principally Arizona and somewhat into New Mexico, but only in a minor amount, principally Arizona. The operating agent, construction agent, for the southern transmission system was the ~~Arizona Power Company~~–Arizona Public Service, I mean, APS. The western transmission system is two agents. One is Los Angeles Department of Water and Power, who constructed the McCullough substation and switchyard outside southeast–it would be southwest out of Boulder City, and the Nevada Power Company, who actually did the line construction.

Layoff Contracts for Reclamation's Share of Navajo Generating Station Electricity

The United States is still involved in that process. Because the United States could *not*, at the beginning of each of the three generation units coming online at Navajo, the United States was not in a position then to take the power. It, it being the United States, in turn, contracted to lay off the United States' share of the Navajo output to the original five owners–APS, Tucson, Nevada Power, Salt River, and L-A-D-W-P[17]–plus Southern California Edison Company. And these were called layoff contracts, which I administered also. Those contracts were subject to termination upon, I believe it was a two-year notice, which was immediately issued upon execution of the contract, and the two-year notice was just the first phase of the termination. The United States then had, I believe, it seems like it was a six-month secondary notice process and then a thirty-day final notice process to actually recover its entitlement back from these layoff contractors and, thereby, being able to use it for the Central Arizona Project.

The United States Had No Use for Navajo Generating Station Electricity until It Was Required to Operate Central Arizona Project Facilities

Until the Central Arizona Project canal system, pumps, relifts, etcetera, was constructed and brought online, which occurred, I guess, in the late eighties, there was really no need for the United States to take any of this Navajo power and utilize it. So it was, in fact, laid off kilowatt hour for kilowatt hour, dollar for dollar, to the layoff contractors. And basically this kept the United States *whole* as far as funds

17. Los Angeles Department of Water and Power.

expended for the O&M fuel costs, and it also helped in the recovery of *some* of the construction costs, not all of it.

Congress Authorized Reclamation to Make a Profit on the Navajo Generating Station

Any *profit* that was gained could only be done as a process associated, what ultimately was called the Plan 6 of the Central Arizona Project, which allowed for the United States to maximize power revenues, one of the very few projects that Reclamation has ever been involved in, in which making a *profit* was authorized by the Congress. As a matter of fact, it's the only project I've ever been associated with that did allow for a profit margin.

"Anything that was excess to those needs [of the Central Arizona Project] was available to Western to put on the open markets, sell it for the best price that it could get. . . ."

That proved to be an interesting exercise for Western Area Power Administration acting as the Bureau of Reclamation's agent in how to take that resource out of Navajo and sell that product, that which was not being used for Central Arizona Project pumping needs. Anything that was excess to those needs was available to Western to put on the open markets, sell it for the best price that it could get.

Part of Plan 6 allowed for the marketing of the Navajo surplus over and above Central Arizona Project needs, which amounted to a number of megawatts–the number escapes me at the moment–to basically nonprofit entities in Arizona first. Then I believe the criteria was that it could be offered to other entities in Arizona. Then if there were not enough takers, then it could be offered into nonprofitmaking or preference-type customers, if you will, in the Desert Southwest marketing area of Western. Then it would go to profit-type or non-preference customers.

". . . the marketing plan that was developed in 1984-'86 time frame for Western Area Power's Boulder City Area Office anticipated the use of this Navajo surplus in conjunction with Parker-Davis Project resources and Boulder Canyon Project resources, and basically coming up with a composite area resource pool of energy and capacity. . . ."

However, the marketing plan that was developed in 1984-'86 time frame for Western Area Power's Boulder City Area Office anticipated the use of this Navajo surplus in conjunction with Parker-Davis Project resources and Boulder Canyon Project resources, and basically coming up with a composite area resource pool of energy and capacity. Now, the projects were individually contracted for. In other words, Hoover was technically sold to Hoover contractors. Parker-Davis was sold, technically, to Parker-Davis contractors. Navajo was used for CAP first. Then it was sold to Arizona preference and Arizona non-preference customers. And then whatever was left over basically went on the spot market.

Interestingly enough, for a period of time, a contractor or a power recipient of Hoover, Parker-Davis, or Navajo really couldn't tell which power resource it was getting, and that was the whole idea of pooling these resources, is basically we used whatever resource was the most efficient, "we" being the United States at that time. Western specifically used the most *efficient* resource available from those three–Hoover, Parker-Davis, and Navajo–to supply the demands of the customers within that region. It's economically good sense. It provided definite stability to the resource and reliability. It also allowed for more flexibility in the way the hydro system was operated. In other words, if we needed to do maintenance on hydroplants, we could take those units out of service, diminish the output out of the hydro plant, but pick it up by supplying the Navajo steam generation in its stead.

To the customer receiving that product, it looked transparent. They paid a Boulder Canyon rate if they were a Boulder Canyon customer. They paid a Parker-Davis rate if they were a Parker-Davis customer. We had to price the Navajo power in such a way we knew exactly what it cost for O&M. We knew what the component was to pay off the debt associated with retiring the construction cost of Navajo. Plus, we knew that anything over and above that that we could sell it for would become, if you will, a profit margin.

After a time Salt River Project Contracted with Western for the Entire United States Entitlement of Navajo Generating Station Electricity

That didn't work real well. We were fundamentally lucky if we could just about make our O&M cost selling Navajo that way. Subsequently, a series of negotiations were entered into with basically Salt River Project as a continuation of the Plan 6 marketing scheme. It basically allowed for the Salt River Project to fully contract the *entire* United States' entitlement back to Salt River Project as though it were its own, which is kind of a roundabout way, because technically it is its own. It's just that it's dealing it through its trust relationship with the United States. But it also, in doing this, was providing for the assurance of repaying Central Arizona Project bonds that had been negotiated and used or actually executed for the construction of the Central Arizona Project by the Central Arizona Water Conservation District.

". . .guaranteed that . . . the cost of the United States to participate in the Navajo [Steam Generating Plant] Project was being totally picked up now by Salt River Project. . . ."

So, Salt River Project, basically as a neighbor and a co-supplier of Navajo power and its own other generation resources plus a water supplier both in the wholesale and in the retail market in Arizona, was probably the most likely entity able to take Navajo *cheaply* into its resource base, maximize it for Central Arizona Project pumping purposes, as well as integrate it into its own resource base and use it throughout its system, all the while doing that guaranteeing to Central Arizona Water Conservation District that the pumping requirements necessary for C-A-P would be met. That was guaranteed that the debt service on the various *bonds* would be satisfied on a monthly basis, and the cost of the United States to participate in the

Navajo [Steam Generating Plant] Project was being totally picked up now by Salt River Project.

So the United States, in effect, is *whole*. It pays Salt River Project; it pays A-P-S; it pays Nevada Power; it pays L-A-D-W-P as the four operating agents for the United States's share of Navajo. In turn, it takes those bills and they are basically laid back into a bill which is sent to Salt River Project that the United States is reimbursed for, which is a very convoluted way of doing it, but from an accounting perspective, it's a clean audit trail, and it keeps the contractual arrangements, both from the United States's participation as a *participant* in the Navajo Project to the United States's acting as a contractor and a marketer of Navajo's entitlement to maximizing the revenues. So while it sounds incestuous, at best, it has very clear contractual paths, it has very clear accounting paths, and they really don't cross lines except when it finally gets all back into Treasury, and then who can tell what color the dollars are anyway.

So it's been an extremely complex, interesting project to work on, say, from the conception through construction to the O&M phase, to the marketing phase, to the repayment phase, if you will, of Central Arizona Project, and I've participated in every aspect of that as it's gone on. It's a very complex set of–the *law* that authorized Central Arizona Project, I believe, was in 1968,[18] very complex law, very *explicit* law in the way the various funds and the portions ~~of the Lower~~, or components, if you will, of the Lower Colorado River Basin Development Fund, was to be funded, repaid, expended, recovered. All of those aspects were very clearly laid out within the context of the law,[19] as well as dealing with some other things such as when the Parker-Davis Project would [be] deem[ed] to be repaid.

Wes Steiner and the Lower Colorado River Basin Development Surcharge

That's an interesting little side story. It goes back to, I believe, a fellow by the name of Wes Steiner.[20] I'm not sure what his role in Arizona water politics was, but he was certainly one of the forerunners and advocates of it. I recall in my very first Parker-Davis rate adjustment that I prosecuted through the FERC,[21] ~~1968-'69~~ [1978-1979] time frame, as a new public utility specialist for Western, I was asked by Mr. Steiner, in the course of a public meeting, why there was no component built into the Parker-Davis rate base to repay Central Arizona Project. And I recall telling Mr. Steiner, as well as the other customers, as unabashed as it may be, this probably stems from my youth and exuberance at that time, that basically because Parker-Davis was a Reclamation project and rates were being set under the auspices of the 1939 Reclamation Project Act, we weren't entitled to make a profit. Therefore, there was no component in there to pay for other than Parker-Davis Project requirements.

18. Colorado River Basin Project Act of September 30, 1968, Public Law 90-537, 82 Stat. 885.
19. As amended by the Hoover Power Plant Act of August 17, 1984, Public Law 98-381, 98 Stat. 1333.
20. Wesley E. Steiner was the Director of the State of Arizona Department of Water Resources from 1980 to 1985.
21. Federal Energy Regulatory Commission, formerly the Federal Power Commission.

Mr. Steiner learned well from that session, and I admire him, because when the ~~'68~~ [1984][22] legislation was going through, he was very shrewd, he and the others in the Arizona contingency, to ensure that Parker-Davis had a definite termination date for construction to be spelled out in law. Because I had told him that fundamentally under the '39 Act criteria, that every time we did an addition to Parker-Davis, it, in effect, started a new fifty-year repayment life cycle, and inasmuch as the Congress authorized that appropriation for new construction for Parker-Davis Project, that meant that it authorized a fifty-year repayment. Therefore, Parker-Davis wouldn't be repaid until fifty years from that latest particular construction, whatever it may be. So the potential was there that Parker-Davis would *never* be paid off. As long as there was any addition being made to the project, technically it would never be paid off.

Well, Mr. Steiner listened very long and he questioned me very severely about that, and he heard clearly and he understood beautifully, and so he and others ensured that in the ~~'68~~ [1984] Act it very clearly said that from the last date of construction, or actually the last appropriations for construction of Davis Dam, which occurred in about 1945–no, '55 as I recall.

Storey: Somewhere in the forties or fifties.

Boyce: Yeah. It would be in that time frame. That that would set the point in time at which the fifty-year clock would start, and that additions subsequent to that point in time for Parker-Davis were not deemed to be original construction. And so he got it put into *law* that on June 30, year 2005, it was deemed by the Congress in the passage of the ~~'68~~ [1984] Act that Parker-Davis, in fact, was paid for. That would be the original construction.

That, of course, does not talk about subsequent additions or replacements to the project. They have their own repayment cycle. But certainly from the aspect of the ~~'68~~ [1984] Act, which had two clauses or two sections in it, it basically said that when Boulder Canyon Project was repaid as of May 31, 1987, every kilowatt hour generated and sold into Arizona would have a four-and-a-half mil adder or surcharge or an additional component added on to the Hoover bill going into the Arizona entities, and the energy being generated and being sold into Nevada or California would have a two-and-a-half mil adder out of Hoover.

And, in fact, on June 1, 1987, Hoover initiated these adders. It's called the Lower Colorado River Basin Development Surcharge, I guess, for lack of a better term. But that clock, of course, started on June 1, 1987, and it may have been moved to October 1 of 1987, because of the 1984 Act, and I don't recall whether it started on June 1 or October 1 of 1987. It's academic. But the other aspect of the '68 act said that when–

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BEGIN SIDE 2, TAPE 1. SEPTEMBER 29, 1997.

22. Mr. Steiner and others put language in the Hoover Power Plant Act of 1984 amending the Colorado River Basin Project Act of 1968.

Boyce: . . . Parker-Davis Project was deemed to be paid off on June 30, 2005, beginning July *1*, 2005, the same adder would be added to every kilowatt hour of energy produced and sold out of Parker-Davis Project.

Storey: Now, is this what's also known as the development fund?

Boyce: This amount of money that is being added on to the Hoover and ultimately on to the Parker-Davis energy is paid into the development fund, into the Lower Colorado River Basin Development Fund. That's where it's deposited. It goes there each and every month right now from Hoover and it will ultimately from Parker-Davis. There was a couple of other minor projects like the Dixie Project which was authorized, but never constructed. It has the same caveat on it. I guess if it ever gets built and then power is ever produced, then it, too, will have that.

The ~~'68~~ [1984] Act had a lot of far-reaching impacts. It basically codified into *hard* law the filling criteria for Lake Powell and Lake Mead, which basically established when the Lower Colorado River Basin Dam funds deficiency charge became a finite amount, which was then to be repaid, I think to the tune of $500,000 annually to the Upper Basin. A lot of this all got solidified in the ~~'68~~ [1984] Act. It was kind of an act to build Central Arizona Project, but it was also cleaning up a lot of *other* project acts along the way.

So the '68 Act had far-reaching impacts on a number of things. It's working. The contracts with Salt River Project, basically they have under contract now the entire United States' 24.3 percent entitlement. It's basically keeping Arizona energy in Arizona, and it's keeping Arizona dollars in Arizona and the repayment of the Central Arizona Water Conservation District's bonds. It's retiring those. It's ensuring that water is pumped. It's ensuring that the Central Arizona Project concept is working.

So I guess, from my perspective, it's a net wash. As long as the United States remains whole and it's ultimately having all of the funds advanced, those which were deemed to be by the Congress, deemed to be reimbursable, those are *all* being recovered or will be recovered within their repayment cycle, principally by power, some by the sale, obviously, of water and from M&I taxes or M&I water sales and then ad valorem taxes.

That gets into a whole realm of discussion about how the various costs of the Central Arizona Project, the various features, were allocated to be repaid or not to be repaid, what was allocated to power, what was allocated to M&I, what was allocated to ag, what was allocated to recreation, etcetera, etcetera, all of which is the subject of an ongoing lawsuit, and I'm not going to discuss that at all while it's in litigation.

But certainly from a repayment specialist's perspective and a power marketer's perspective, it looks to me that the United States has *ensured* from the power perspective that all of its obligations have been satisfied and that *all* of the obligations *burdened* upon power are being satisfied, i.e., repayment are being done

under the various contracts that have been negotiated and executed. And I guess that's about all I know on that law.

Processing Requests for Payments During Construction of the Navajo Steam Generating Station

Storey: You mentioned at the very beginning that you would get a phone call and then you would have thirty-six hours to process.

Boyce: Actually, United States had thirty-six hours to have the check cut. I had a matter of hours to process my perspective of it. We would get a phone call from the Treasurer's office at Salt River Project when they needed the next advance of construction dollars. That would come into the secretary's office in finance, and it was one of those exercises that was absolute. I mean, it could not derail. As soon as that phone call came in, I was to be immediately notified of what the amount was, and start processing the voucher to pay.

Kind of an interesting side story on that, and I guess it's kind of a joke on myself, is that on two different occasions, the finance officer at that time was George Johnson–I did recall his name finally–prior to Dale Imlay taking over. George Johnson had come in and had taken the phone call on two different occasions, and walked in with a piece of paper and said, "This is how much we owe Salt River Project." And I processed the amount. In both cases, in both instances, it was well over a million dollars. And just to demonstrate how quickly this thing moved, literally I did my processing part, I took the voucher into the certifying officer, it was certified for payment, it was transmitted by faxogram to the Treasury, and the check was literally cut, *all* within the thirty-six hours that we had.

One of our systems accountants, a fellow by the name of Wayne Brewer, who basically oversaw and watched all of the accounts from a *fiscal* perspective for the Navajo construction and was also one of our auditors that participated in the Navajo audits, got a phone call in a few days in both instances from the Treasurer at Salt River Project saying, "We have this check from the United States. It's to the tune of a million and some-odd hundred thousand dollars for advance payment of–" whatever the next construction costs were. The treasurer's office was perplexed as to why the United States so graciously paid all six of the participants' total bill instead of just paying 24.3 percent of the total bill.

Well, as it unfolds, it seems as the finance officer, in his haste to make sure that we met our thirty-six-hour deadline, didn't clearly listen to the entire phone call and took the first dollar amount that they gave, which was the total amount for *all* of the participants, which would subsequently break down by their percentages. So instead of owing a million-plus, we owed maybe $240,000. But we certainly demonstrated that the system worked. We made our thirty-six-hour commitment with no problem. The fact that we tried to pay everybody's share, I guess, is neither here nor there.

So, the bottom line was that I got a reputation of being "Million Dollar Harvey," and the finance officer stopped taking the phone calls, and we started having them not only call the secretary or call me direct, or they would also fax in the breakdown of it, so when I got the phone call and the fax, then we'd have exactly the backup we needed to have the actual amount that we should be paying.

Anyway, that was a rather interesting process to go through. Certainly we executed it to the nines. A couple of instances we overpaid, and Salt River was gracious enough to deposit the check and then send us back a refund for the amount that we had overpaid in both cases.

Storey: What would happen to that check then?

Boyce: The check that was sent to Salt River Project? It was made payable to them, of course, on the Treasury of the United States. The refund, in the case of the two overpayments, they would send back to us in the LC Region. We, in turn, would just deposit that back into the Federal Treasury, basically as an offset against the funds that we had disbursed. Other than time, value, and money, while that cash was, in effect, out of the Treasury, I guess no harm, no foul. But it certainly was a little embarrassing, to say the least, and then got to become kind of a standard joke. I guess the only good thing of it is I wasn't the originator of the phone call or the recipient of the phone call. In those two instances, I was just merely the processor abiding by his supervisor's instructions.

Storey: So some sort of an accounting procedure put the money back into the account it had been taken out of?

Boyce: Yeah. When we deposited the check back to Treasury, or the refund check, the balance that Salt River Project sent to us, we would just code it back into that fund symbol associated with Lower Colorado River Basin Development Fund. With that fund being essentially a revolving fund, once it was deposited, it was then available again to us to use for whatever purposes that Central Arizona Project needed.

Storey: How would the check be delivered?

Boyce: The check initially, I believe, was sent out like special delivery. This was back before we really got into electronic fund transfers and that. Then ultimately we went into the EFT type of transactions, wire transfers and that. So the process now is all electronic; it's not a physical check being cut.

Storey: But you didn't have any prior warning that you were going to be asked to come up with whatever it was?

Boyce: No. I guess those–Wayne Brewer, others–who saw the annual budget for construction which was probably done more in the Power Division, I would imagine, 600 Division, in the region. By[ron] Miller, the other fellow's name I couldn't remember, that was head of power prior to Bob Olson. By Miller, Bob Olson, Harold Hood, Dave Onstead, all these people were one time or another involved in Navajo

negotiations and the ultimate contract processing. But they attended the various management type meetings that went on, they saw the budget, they approved the budget along with the other participants, and I suspect that they may have had some idea, some projection in their budgetary process of about when certain stages of the construction would be requiring advance funding. At my level, I was not privy to this. Don't know that it would have made a lot of sense to me at the time. Certainly would now, but not then. So I basically was subject to the phone call. When the phone call came, that's when I went into action.

Storey: How did you know you were supposed to pay them that money?

Boyce: Basically just on the strength of the arrangements that we had made with Salt River Project, instructions that I'd been given.

Storey: OK, so then the next question becomes, how did we make sure, after the fact, that we were supposed to pay them that money?

Boyce: Well, after the fact, of course, we would get a hard copy invoice. At the time the phone call came in is at the time the invoice was being prepared and mailed to all the participants by Salt River Project. I think as a result of the second episode of our overpaying that advance construction amount is when somebody–why they didn't think of it to begin with, I'll never understand–decided that it wouldn't be that much more difficult, the situation, not only for Salt River to put the invoice in the mail but also to fax it to us. And then, of course, they could telephone, followed by a fax. We'd still have plenty of time to meet our thirty-six-hour processing time.

I guess, in retrospect, it should have been done that way. And maybe it was, you know, the second erroneous payment that finally somebody who was in charge woke up to the fact that we really didn't have good check and balance in place. We had strictly the integrity of the people making the phone call, people receiving the check, and the subsequent billing as our check and balance. You know, hindsight is 20/20, I guess. It just took an error or two to get it resolved.

Storey: But did we ever have any problems when the bills did come, or were you involved in that?

Boyce: Actually, I was not involved in the reconciling of bills, especially from the construction perspective. Our fiscal accounting people were taking those in and vouchering those to make sure that they comported with the actual costs that we were being charged on our other bills. They would also use those when the audit committee would go in and audit Salt River Project, and the audits were being done about every six months. Initially, it may have been every quarter, but I think it ultimately went six months and then *annually*.

Those audits still go on today. We still participate in, and we have audit representatives from the Bureau of Reclamation that still participates with the other participants in auditing all of the agents for the western and southern transmission system[s] as well as Navajo [Generating] Project.

One of my subsequent responsibilities in Western is I was the alternate to the audit committee, along with Dale Imlay, who was the principal. So while I represented Western's aspect of the audit committee, from the perspective of the two transmission systems, Dale Imlay or Jack Pong [phonetic] was representing the United States from the aspect of the generating station.

So there was a very close auditing of Salt River Project, of L-A-D-W-P, of A-P-S, of Tucson, whoever had operated as a construction or operations manager for those various components of Navajo. So I guess that's *really* the answer to your question. They were *all* looked at. They were validated. Many adjustments occurred during the construction phase. I know they finally did come to final construction report and cost and all the funds that had been advanced for construction that were in excess of that were subsequently refunded back to the various participants, including the United States. So the construction phase is done, and we were strictly in an O&M phase. In the O&M aspect, we pay upon invoice; we don't advance pay. So the only thing that was really done under an advance payment schedule was the construction aspect.

Storey: You mentioned that there were technological advances made on the railroad that was built. Do you happen to remember any of those more specifically?

The Train That Hauled Coal to the Navajo Generating Station Was Unmanned

Boyce: They found over the *years* in the amount of tonnage that was being transported in the various rail cars, the electric train there is basically an unmanned system. It's basically like your typical Lionel train at home, your model railroad. The track was actually energized, and so by regulating the way the track was energized controlled the speed of the train, the starting, the stopping of the train. As it would come into the generating plant, each of the cars went over an area of track which was basically the opening to a great big hopper. The coal cars were opened at the bottom, disgorged their contents of coal into this hopper that the track was running over the top of and through a conveyor belt system. It was processed into a stockpile, ready for transmission into the furnaces to be used to fire the steam generation.

The fact that they used concrete ties, rail ties, they found with the amount of vibration and the loading of the trains going over there that there was some deterioration requiring some repairs and rethinking of the actual way that railroad was constructed. They also found cracking in the *steel* rail ties, and that required replacement of certain sections of rail. As I recall, they had to change the alloy composition in that steel rail. The original composition, it was having a tendency to crystalize and crack. And, of course, you know, that could lead to the rail separating, train going off the track, etcetera.

It's your typical model railroad done in a very *grand* scale, very expensive scale, but it's a system that seems to be working and working pretty well. The train basically went down and dumped its load, turned around and went back. It's kind of a railroad to nowhere between the plant and the mine. I've seen it in operation. It's an interesting process. But totally unmanned. So, a lot of technology just in

developing that length of a electric train, if we will, not being physically operated by an onboard operator.

Storey: Let's talk more about layoff contracts. Was Reclamation being paid for this power that these companies were using?

Boyce: Yes. Reclamation's cost of the power, of course, was the amount associated with the cost of O&M and fuel for the generation. Here again, we were paying essentially our cost, as [were] ~~well as~~ the other five participants in Navajo. When we took our cost for the power that we received each month, which we, in turn, had laid off to the five owners and Southern California Edison Company, we basically laid off proportionately to each of those entities, those six layoff contractors, our costs for that month's bill. So every dollar that the United States spent for O&M we *recovered* from the six layoff contractors, plus we had, as I recall, a 15 percent adder for administrative costs. So we made a buck on that type of thing. All of that money, of course, again, was flowing into and out of the Development Fund. So it was there strictly for the purposes envisioned in the '68 Act.

"When the Central Arizona Project came on line . . . we had gone through a nullification process. So the United States finished its withdrawal process and recovered all of the power for its use pumping Central Arizona Project water. . . ."

When the Central Arizona Project came on line, as I mentioned earlier, we had gone through a nullification process. So the United States finished its withdrawal process and recovered all of the power for its use pumping Central Arizona Project water. As I again mentioned earlier, that subsequently has been contracted to Salt River Project for all of the assurances.

One of the interesting things that occurred is there was an after-the-fact adjustment to the coal royalties that, I believe, were paid to the Native American Navajo Tribes. This is all under some contractual arrangement between the United States and the tribes, as well as ~~the participants or~~ the owners. We'd gotten embroiled in a lawsuit–we, being the United States, more Western than Reclamation–between ourselves and Southern California Edison Company in the payment of the last adjustment of that royalty, which impacted a period of time in which the layoff contracts were in effect. So, subsequently, Southern California Edison Company have an obligation to reimburse the United States retroactively for that adjustment and that royalty payment.

Without getting into the merits or demerits of that litigation, Edison failed to render proper payment timely and, subsequently, the United States effected the government's right to administrative offset and recovered the funds owed the United States by Edison from another resource. Because I am a principal in that litigation, I can't really discuss it any further than that.

Storey: So that's ongoing now?

Boyce: That's an ongoing thing. Needless to say, Navajo is, I guess, from a personal perspective, Navajo Project has, so far in my career–and that goes back into the mid-seventies to date here in the 1997 time frame, soon to be '98–has caused me to be deposed as a witness in a litigation early on in the construction process, probably will lead to my being deposed in the litigation that's now pending in the settlement of Navajo. So I'm not sure whether that's a good thing or a bad thing, but certainly has broadened my horizons of experiences, as far as being involved with the United States' attorneys in being a "expert" witness, I guess, in terms of–

END SIDE 2, TAPE 1. SEPTEMBER 29, 1997.
BEGIN SIDE 1, TAPE 2. SEPTEMBER 29, 1997.

Storey: This is tape two of an interview by Brit Storey with Harvey W. Boyce on September the 29th, 1997.

Is that lawsuit that you were originally deposed for over?

Boyce: Yes. Quite frankly, it happened so long ago, I don't even recall the litigant's issue. I recall that George Johnson and I both were deposed, and I suspect that it may have had to do during the construction. As a matter of fact, I can't imagine why it would have been associated with anything *other* than the construction phase of Navajo.

Potentially, because of the number of subsequent Freedom of Information requests that I've responded to, I know that there has been over the years somewhat of a controversy between the various trade unions and the Navajo participants, specifically the Navajo owners, as to Fair Labor Standards practices. I suspect that this was probably one of those similar-type situations where the litigants are looking to the United States to be the deep pockets, where, in fact, we are nothing but a trustee and certainly not an owner. That's an interesting relationship that we have with Salt River Project and with the other four owners of Navajo.

We continually are barraged with requests, either under Freedom of Information or in the case of a litigation discovery, the United States' involvement, what its knowledge, what its exposure is involved in various litigations. As I said, a lot of it's been involved with the Fair Labor Standards Act. There's been issues raised, I know, by the tribes on the hiring or the number of employees hired to work at Navajo as far as Native Americans. Again, these are decisions that are made by the owners, not by the trustee in this case. And while, yes, we are a participant, we certainly don't vote as an owner. So those ownership-type obligations, responsibilities, thank God, do not fall upon the United States. And while it's frustrating and it's time-consuming as an employee of the United States to respond to all these various inquiries that come in, nevertheless, we still *have* to respond and we still have to basically *turn* the requestor back to the owners and say, "These are the people that you need to deal with. We are nothing more than a customer, if you will, of them." So it's been interesting.

But over the years I've had, as I said, a number of Freedom of Information requests I had to respond to on mainly hiring and labor practices. But, there again,

that's not the United States's call. Certainly, as I said, there's litigation between Central Arizona Water Conservation District and the United States Bureau of Reclamation now and ultimate repayment responsibility of CAP. Again, that's in litigation, and I'm not knowledgeable and certainly not that privy to what's going on. But it's certainly not a subject that I can discuss, even if I were.

Storey: Were you paying this contract from the beginning of the construction of Navajo?

Boyce: "Paying this contract" really is probably a misnomer. There was a number of contracts for construction, specifically for the construction of the Navajo Powerplant, Salt River Project. I guess I was involved at the initial part. I haven't been subsequently all the way through, but certainly at the beginning. Various construction contracts for the features of Central Arizona Project like the boring of the tunnel through Buckskin Mountain. J. F. Shea contract, I paid that from contract administration perspective. There was a number of other major construction companies involved–names don't even come to mind anymore–that I administered and initiated the payments on, verified their invoices when they came in, and all of which went over to fiscal accounting and were subsequently verified, audited, whatever.

Storey: Somehow I recall–I'm not sure whether I recall accurately–that there was a lag between the time that construction began and Reclamation's obligation began and when Congress actually appropriated money, so that there was a period when we were *not* able to pay. Do you happen to know anything about that, if that is an accurate recollection?

Boyce: I don't recall the specifics of that, and again I'm not sure whether that was directly involved in the construction of the Navajo generating plant or whether that was more in terms of developing the various features of the Central Arizona Project. My recollection is it was more for the features of the Central Arizona Project, *not* the Navajo Project.

In any event, just assuming that your recollection is correct, *all* contracts the United States has with a contractor have a clause in there that's something to the effect that says "subject to the availability of Congress appropriating the dollars." In an instance where the dollars were not appropriated, basically the United States' participation–and the more I think about this, when we talk about it, I think this did occur–is that the other participants basically ponied up the money for the United States until such time–as a matter of fact, I think the contract even specifies. The more I think about this, the contracts that the United States entered into, certainly for Navajo participation, stipulates that if the United States is unable to advance its fair share due to the non-appropriations of dollars by the Congress, then the other owners basically underwrote the United States' share until such time as the United States appropriations were available, and basically we would reimburse them.

As I now think about it, I believe we did exercise that provision at least once, and it may have been in the construction of Navajo steam plant, even. I vaguely recall that there was a period of time right at the beginning of the fiscal year the

Congress, my own personal opinion, dallied about doing everything other than getting to the business of running the United States and had failed to appropriate dollars for the next year's construction budget for Central Arizona Project. In fact, I think it was a period of time when Reclamation, and even Western probably at that time, were on continuing resolutions, well into the new fiscal year before they finally got around to getting the budget signed and the dollars appropriated. And I think you're right. I think your recollection is correct. But we had the provisions there in the contract which protected us. We were able to work through that.

Storey: What else should we be talking about while you were still with Reclamation?

Boyce: Man, it seems like so long ago, too. We talked about Hoover, my recollections of Hoover, the power billing, power repayment, accounting. I'm just about at the point where I'm totally brain dead, I think.

Storey: Well, in 1977, Congress passed an act creating the Department of Energy, I believe.

Boyce: Right.

Storey: And Western appeared on the scene, and the result, of course, was the transfer of *some* Reclamation facilities to them. How did all of this come to you as an employee in the agency? What was going on and how was the agency reacting and how were you reacting?

Creation and Staffing of the Western Area Power Administration

Boyce: Well, with the establishment of the DOE [Department of Energy] Act, subsequent identification of the Western Area Power Administration, and the very real fact that there were key Reclamation employees throughout Reclamation that were being basically tapped or tagged on the shoulder as being a part of the team that would establish but not staff Western Area Power Administration, an inquiry was made into, I guess, all the regions–certainly I can only speak for Lower Colorado Region's perspective–about who, as far as employees, might be interested in transferring over to the Department of Energy and basically staffing that organization–Western.

In the LC Region they had identified, it seemed to me, two accountants and one or two accounting technicians to be associated with the area office, yet to be named, that would be in conjunction with the Lower Colorado regional office, then determined that there would basically, I guess, within Western be established an area office located adjunct to each regional office of Reclamation. So that meant that there would be an office in Billings, be an office in Loveland, there would be an office in Boulder City, be an office in Sacramento, and I'm missing one. Salt Lake, an office in Salt Lake. Subsequently, that occurred.

In finance, in the finance division at that time, I was asked, as a new accountant, whether I'd be interested in going over and becoming part of the new team for Western. From a career perspective, it had a lot of great potential for growth. I had a lot of questions, one of which was where was that Lower Colorado

Regional Western office going to be located. Was it going to be located in Boulder City? Was it going to be located in Las Vegas? Was it going to be located in Phoenix, Arizona? Was it going to be located in Golden, Colorado? Nobody seemed to have answers to that.

Moved over to Western Because it Appeared There Was No Career Ladder at Reclamation for Him

In any event, because of my particular grade structure at that time–I was then a GS-9 accountant with Reclamation–there was really *no* promotional ladder available to me within Reclamation within that region. There were too many people above me in the higher grades that were going to be there for a long time or potentially for a long time. And so with the power billing, power accounting function literally being transferred under the DOE Act to Western now, and because I was one of those people that had the experience there, it was probably a natural transition for me to move over to Western. So I petitioned, and was one of the original group of Reclamation employees to be identified to go to Western as an accountant. And, in fact, effective October 1, 1997, or whenever they got the personnel actions done, did.

"The interesting part of it is that because there was no defined office yet in Boulder City, essentially the Reclamation employees that were now 'Western employees' were basically doing their job sitting at their same desk that they had always been sitting at at Reclamation. . . ."

The interesting part of it is that because there was no defined office yet in Boulder City, essentially the Reclamation employees that were now "Western employees" were basically doing their job sitting at their same desk that they had always been sitting at at Reclamation.

"Bob Olson was identified as being Western's area manager for the Boulder City Area Office. . . ."

Subsequently, Bob Olson was identified as being Western's area manager for the Boulder City Area Office. Rumor has it because Bob Olson had just built a brand-new home up on one of the predominant hills there in Boulder City where the more expensive homes were being built, that he wasn't too anxious to relocate the new Boulder City Area Office of Western anywhere other than Boulder City. Certainly he didn't want to go to Phoenix, wasn't enamored about going to Golden. So I guess that's one of those risks that I took that paid off, that I didn't have to relocate, because the area manager didn't want to relocate.

Western Had Offices, for a Time, on the West Side of Boulder City in the Marshall Shopping Plaza

The office finally took physical form in the aspect that it became located in a shopping center, the Marshall Shopping Plaza, in the western part of Boulder City, in some leased office space, and that's where I ultimately physically transferred myself and my work that I was doing for Western.

1979 Western's Office Moved to the Mead Switchyard Substation

In '78-'79 time frame, the powers-that-be in the Western office there in Boulder City initiated a construction and rehabilitation program at the Mead switchyard substation in which a heretofore warehouse/vehicle maintenance facility was remodeled and added on to. It retained the warehousing, it retained the vehicle maintenance area, but also we basically added on office space. So I guess it was probably summer of '79, the office, as it had expanded in the Marshall Plaza, basically contracted with a moving company to, over the period of a long weekend, pack everything up and move it down to the Mead complex.

It was interesting that just prior to that move, southern Nevada had experienced one of those "hundred-year storms," flash floods, and the roadway to Mead leading out of Boulder City south on Buchanan was severely damaged and, quite frankly, was almost blocked, requiring a great deal of heavy equipment to go in there and move material that had washed over the road and literally cut the water line leading to Mead substation, had built up material underneath the capacitor banks to the point that they were in danger of being damaged or malfunctioning. All of this had to be cleared out. But we established a roadway, and we established a water system down to the complex, and move in we did. So I was one of the first inhabitants of the Mead complex. The building still stands today. It's been remodeled once or twice additionally. Reclamation employees are now there. That's the way Boulder City Area Office of Western began.

Working for Bob Olson

Bob Olson ultimately left Western Area Power Administration and became the acting or–I guess he was the commissioner for a while and then ultimately assistant secretary as an acting, I believe, during Robert Broadbent's tenure in the Department. Interesting, reading the book that you gave me on the organization, to see Bob Olson's name show up there. Bob was an interesting supervisor. He was an interesting individual to deal with as an employee and then later as one of the management staff. He was one of those people that professed to be part of the "South Dakota mafia," which was attributed to be the major cadre of management, senior management people at Western, when it was organized.

"Bob was one of those people that . . . came to the staff and he came to the supervisors, not so much of doing the idea, but looking at us to prove or disprove that the idea had merit. Once we'd go through that process and either come to a workable solution . . ."

Bob was one of those people that would come to you with an idea, and he would have worked it out at least in gross aspects in his own mind. He came to the staff and he came to the supervisors, not so much of doing the idea, but looking at us to prove or disprove that the idea had merit. Once we'd go through that process and either come to a workable solution, then we'd look at the actual initiation of doing that concept.

". . . Bob would always get very nervous during rate hearings, and relied heavily upon me then as the public utility specialist, power repayment specialist, to *document* and to validate the need to do whatever it was we were doing. . . ."

I remember Bob would always get very nervous during rate hearings, and relied heavily upon me then as the public utility specialist, power repayment specialist, to *document* and to validate the need to do whatever it was we were doing. Bob was an interesting person to work for from the aspect that he was very nervous when employees *spoke* for the organization, that they'd be correct in representing the facts, they represented the organization well.

I always felt that I made my mark with Bob and established my position as being an authority in repayment. One day when Bob was being interviewed by the local media, during a rate hearing, I might add, he cornered me at the break and he said, "Now, next break the local television station is going to come and interview me, why we need to do this raise adjustment and what the impact's going to be on southern Nevada, etcetera, etcetera." And he said, "Here's the reasons." And he articulated them, to make sure that I supported that his logic was correct. And he said, "Now, when they're interviewing me, you stand right to the side of the camera man so that I can watch you, and as I start through my presentation, if I start to deviate from the facts," he says, "I want you to either shake your head no or nod that I'm going down the right path."

I'll never forget that interview. He had a little bit of a bead of perspiration across his upper lip. He went through the interview, and while he was looking at the camera, certainly it appeared he was looking at the camera, he was watching my eyes all the way through the entire interview. As he would start down a particular response, I would either nod my head, "Yes, that's correct, Bob," or "Bob, I don't think you're going down the right path," and he would retrench a little bit and he'd look to me. I might mouth a key word to get him triggered to where he wanted to go.

I remember him coming up to me after the interview was over and he was wiping the perspiration from his lip and off of his forehead. He said, "Harv, I'd have never made it if you hadn't of been there." And I guess from that day forward, Bob and I had a *bond* established, because it used to be that every time we'd go into another process, Bob would come into my office and sit down and say, "I think this is where we need to go." And he'd always say, "My South Dakota Arithmetic 101 says this is what the answer ought to be." At that point in time, it was my obligation to either prove that Bob's assumptions were correct or certainly show him an alternative that would get him to where he wanted to go, maybe not exactly, but certainly would get him into the general perspective.

So it used to be a standing joke toward the end of his tenure as the area manager that he'd come in and sit down in a management meeting and he'd say, "Well, you know, I've been thinking about–" and we'd all stop right there and say, "Bob, what is the answer that you want us to come up with?" And he would kind of chuckle for a minute and he says, "I think we should be able to do this and such for this amount of money." And then we'd say, "Thank you. Now get out of here," and

we'd all sit around as the management team and we'd brainstorm how we were going to either prove or disprove that Bob was right. And once we had done that, then we'd go in and make a presentation to him and he'd pick at it and he'd say, "But if I can't go here, can I go here?" Or we would come in and say, "Bob, the law says you can't go this way, but if you were to do this or to go this or if you bend it a little bit that way."

That was probably my first and best experience in a very participative team-like environment. Even though it was very clear who was boss, we all had to work together to survive. Working with Bob was one of those things that when you got a call to his office, the standard phrase was, "Did you have your BIPS on?" Now, BIPS was an acronym that we coined for ~~Bite Impervious Material. And actually it was~~ Bite Impervious Protective System, which meant, did you have your chain armor on when you went into his office so you didn't get your behind chewed off too badly.

"Bob was one of those people that instilled a great work ethic in people. He *demanded* a lot, he *expected* a lot, but he *rewarded* a lot, also. As an employee, you didn't mind going the extra mile . . ."

But Bob was one of those people that instilled a great work ethic in people. He *demanded* a lot, he *expected* a lot, but he *rewarded* a lot, also. As an employee, you didn't mind going the extra mile, even if it meant you gave up weekends and nights, because, more often than not, Bob would be there with you. After we would get finished with a major production of rate hearings or customer meetings, Bob was the first one that would take some of the senior managers aside and he would slip them a few bucks and say, "We're having a party at my house tonight, and spring for a keg of beer," or whatever.

"So the early Boulder City Area Office management team formed a very tight family-like organization, and we *regularly* socialized as a group of managers. Our wives and ourselves, we'd get together. . . ."

So the early Boulder City Area Office management team formed a very tight family-like organization, and we *regularly* socialized as a group of managers. Our wives and ourselves, we'd get together. We'd have potlucks. We'd do it at various people's homes, Christmas party together. We'd have a Thanksgiving-type party together. We'd have a Halloween party. Anything to spend an opportunity, from a social perspective, to meet and enjoy each other's company, and absolutely no work transpired during this event. It was one of those management techniques that I've really enjoyed. I've tried to incorporate it myself in–

END SIDE 1, TAPE 2. SEPTEMBER 29, 1997.
BEGIN SIDE 2, TAPE 2. SEPTEMBER 29, 1997.

Boyce: ... and as a process of my master's degree and kind of my fascination with management techniques and management styles, I certainly did enjoy Bob Olson's management style. Certainly, from an employee's and a supervisor's perspective, you knew exactly where you stood with the man. You *knew* if you were going down

the right path. You *knew* if you were going down the wrong path. If you violated something and you got your backside chewed, then it was over and done with. The man did not hold grudges. He expected you to learn from your mistakes, and as long as you did that, then Bob would be there and support you.

Interesting comparison to other area managers to other supervisors I've had, I've seen people that were absolutely dictatorial to those that were very participative, and I see Bob Olson as being one of those that was more of a participative team-like environment manager than one of "I'm the boss and you're the employee" type perspective.

So my experience with Western, certainly up until the time that I left then in 1990, was highly rewarding in some aspects, highly frustrating in some aspects. I was responsible for, I guess, three or four major rate cases, certainly responsible for the 1986 regulations, 10 CFR 904,[23] instrumental in helping Reclamation write its 43 part 431[24] of the Code of Federal Regulations.

Storey: You mean Western?

Boyce: No, that would have been Reclamation's 43 CFR.

Storey: When was this?

Boyce: This would have been in the 1987-'88 time frame.[25] I helped Reclamation write that.

Storey: That's while you were at Western?

Boyce: While I was at Western. Because of my involvement in writing Western's companion regulation to that, it was just good business sense for Reclamation and Western, really, to write those documents jointly. And we did have a team that basically wrote those two documents. But certainly the rate calculations initially conceived in developing the post-1987 contracts for Hoover were basically my responsibility to cause to be written. Spent a lot of hours working with Western's attorney drafting those regulations. I spent a lot of time actually in consult with the Washington office while they were being shepherded through the departmental process. In fact, met with Western's general counsel and DOE's general counsel on those very regulations prior to their being published by the secretary of energy. So, I guess over the years, I've left my fingerprint on a few documents that have had some exposure, certainly in the aspect of law.

Storey: What did these regs have? What were they doing?

23. These are the Department of Energy's "General Regulations for the Charges for the Sale of Power from the Boulder Canyon Project."
24. These are Reclamation's "General Regulations for Power Generation, Operation, Maintenance, and Replacement at the Boulder Canyon Project, Arizona/Nevada."
25. "Part III Department of the Interior, Bureau of Reclamation - 43 Part 431 General Regulations for Power Generation, Operation, Maintenance, and Replacement at the Boulder Canyon Project, Arizona/Nevada" published July 1, 1986, at *Federal Register* 53 CFR 23960.

Boyce: Basically, the regulations are the successor documents to the 1941 general regulations for the sale of power from Hoover, which terminated on May 31, 1987. So we had to draft the regulations. Because of Western and Reclamation's relationship at Hoover, it boiled down to basically myself and–I believe it was Don Esgar was in at that time in the power division at Reclamation that I worked with in getting the Reclamation's companion document written.

So we spent a great deal of time in consultation between my staff and myself, Reclamation counterparts in the region, in getting those documents *drafted*, circulated amongst the customer group, getting their input and comments, circulating it between the Denver office, the Golden office, the Washington office, getting their comments and input. It was a long process, frustrating at times, rewarding to see in a document that you had spent a great deal of your time in drafting and causing it to take shape and finally become a document that's widely published.

Storey: In '77, when all of this was going on and you were thinking about whether or not you should move or not, were there any rumors or intimations or anything about RIFs [Reduction in Force] or anything like that?

"The other was a period of uncertainty, mainly because it seemed like a lot of work didn't go away that maybe people thought should have gone away, should have been transferred. There was a lot of sense of people that certain pieces of work were theirs and that they shouldn't have to give them *up* . . ."

Boyce: I don't recall any intimation about RIFs. Reorganization, sure, because the Reclamation offices were going to lose, and did lose, a wholesale number of employees. The other was a period of uncertainty, mainly because it seemed like a lot of work didn't go away that maybe people thought should have gone away, should have been transferred. There was a lot of sense of people that certain pieces of work were theirs and that they shouldn't have to give them *up*–turf-guarding, we called it.

". . . those that went to Western were subject to a great deal of adverse comment, I guess, is a good term to use by former colleagues when we'd visit Reclamation offices There was a lot of getting used to the fact that there was two organizations. There was a lot of uncertainty as to what each other's role was or was not to be. . . ."

Certainly there was a great deal, or it was my experience that there was a great deal, of *animosity*. It was not necessarily ugly animosity, but certainly those that went to Western were subject to a great deal of adverse comment, I guess, is a good term to use by former colleagues when we'd visit Reclamation offices. There was a lot of getting used to the fact that there was two organizations. There was a lot of uncertainty as to what each other's role was or was not to be.

For the most part, that's gone by the by over the twenty-odd years, but it's also interesting to note that in my research in 1994, when we were working on the power management laboratory, there is still amongst some of the folks that were around in 1977, both Reclamation and Western, for that matter, it seems to be equally

spread in both organizations, there's still, at least in some of those individuals' mind, a bit of turf-guarding going on. There's still some animosity there. I guess one of the good things about twenty years of time expiring and reorganization of both agencies, a lot of those individuals have chosen to take advantage of retirement, reassignments, etcetera, and a lot of those issues have died away, but they've died away painfully.

Some Customers Have Taken Advantage of the Tensions Between Reclamation and Westerm

I think, to some degree, that animosity, whether vocalized or deep-seated, however it was, has led to a great deal of problems brought upon the United States by the customers. Customers have been sensitized to the turf-guarding, to the disenchantment of various employees within the two agencies, employees who have been outspoken probably where they shouldn't have been, but certainly have been outspoken in the hearing of the customers and the customers have capitalized on it. I've seen instances where the customers have been concerned to the point that they have come to the agencies as kind of a friend of the court in "How can we help you? How can we get beyond this? We need your people to be focused on doing our work. We don't need them to be focused on petty trivia things such as turf-guarding."

But on the other hand, they've also been our adversaries in that they've taken this uncertainty and lack of comfortableness of what each agency's roles were to criticize openly the agencies, both agencies' performance. They've used it to probably further the aspect of privatization. They've used it certainly in the aspect of accountability, or lack thereof, and it has created some problems. Maybe it has also been, in hindsight, the catalyst that was necessary in order to start to bring the agencies together to start working as partners, certainly as demonstrated recently by the commissioners and the administrator of Western's signing a joint document that basically reaffirms our relationship.

Certainly having been a customer, from the customer's perspective, it was easy to drive the wedge and to utilize it to the customer's perspective. It was easy to find the vulnerable points of both Reclamation's organization, Reclamation's accountability, *Western's* organization, *Western's* accountability, and use it to the customer's advantage. Is this good or is this bad, I don't know. I guess time will tell. Certainly this more participative, partner shipping arena, cooperativeness, that we've gotten into between ourselves, our sister agencies, and now with our customers is probably not all bad, but time will demonstrate that.

Storey: What was your first job at Western?

Went to Western as an Accountant and Then Was Promoted to a Public Utility Specialist Position

Boyce: First job at Western was as an accountant, and because of my experience there and the fact that there was a vacancy in the public utilities specialty group, power marketing of Western, that I seemed to fit the bill for, and it had a greater promotional ladder available to me, I opted to bid the job and was successful in being

assigned to it as a public utility specialist. It allowed me to get to my [GS-]11 fairly rapidly. It took probably six months after, six to eight months after, maybe even as much as a year after joining Western before I got my 11. Within a short time, after twelve-, thirteen-, fourteen months, I got my 12 at Western. Because of the beginning of the marketing, development of the marketing plan for the 1987 time frame, I was in the right position to be put in as an acting division director for marketing rates, and subsequently was able to bid that job and be promoted to it, which got me to my GS-13 rating and subsequently to a GM-13 rating, the job I held until I took my involuntary retirement in 1990.

". . . assignment . . . I now have in looking at our Reclamation production costs, looking at performance measurements, looking at how we, as an agency, can better interface with Western, with the Corps of Engineers, with BPA. . . ."

It certainly gave me broad experience in the entire power marketing arena, more exposure than, I think, most employees would really have an opportunity to have over a career. That, coupled with my finance, my power accounting background, certainly placed me in a very enviable position in the appointment to the job I now have and the assignment that I now have in looking at our Reclamation production costs, looking at performance measurements, looking at how we, as an agency, can better interface with Western, with the Corps of Engineers, with BPA. How we as an agency can interface in *conjunction* with our partners–Western, Corps of Engineers–in dealing as a united *government* position, government front to the customers for our projects.

Heretofore, we looked like we had two projects at Parker-Davis: one was Reclamation's Parker-Davis Project and one was Western's Parker-Davis Project. Congress authorized only one Parker-Davis Project. It just so happens there's two agencies administering it. One is doing the generation side, one is doing the transmission side, and the two agencies have *now* got to come back together again and represent the *project* to the customers and to the Congress, *regardless* of how many agencies there are.

"So that's kind of my new charter in life, is to work with our sister agencies and develop that strong tie amongst Western, amongst the Corps, amongst BPA, and Reclamation, so that when we represent the project, we represent it as the United States and not as the individual agencies, and start building that armor back around the government that has been weakened over the years to where we've been somewhat vulnerable to a lot of outside attack, bad publicity, adverse comment, even attacks from the Congress. . . ."

So that's kind of my new charter in life, is to work with our sister agencies and develop that strong tie amongst Western, amongst the Corps, amongst BPA, and Reclamation, so that when we represent the project, we represent it as the United States and not as the individual agencies, and start building that armor back around the government that has been weakened over the years to where we've been somewhat vulnerable to a lot of outside attack, bad publicity, adverse comment, even attacks from the Congress.

"We need to form that bond back together . . . presenting the best picture back to the Congress . . . the customers . . . the taxpayers . . . to thwart those that would poison the minds of the general public that we are just another bunch of fat cats, that we, in fact, are the agencies that do pay their debts back, one of the very few, and that we are doing and delivering a product the cheapest . . . most efficient . . . economical way, and to the largest number of recipients . . ."

We need to form that bond back together so that we represent to the Congress that we as Federal agencies and those charged by the Congress to administer Federal law and Federal projects are, in fact, presenting the best picture back to the Congress and back to the customers, back to the taxpayers as a whole, that, in fact, we are the best and we are doing the best job that can be done, and that to thwart those that would poison the minds of the general public that we are just another bunch of fat cats, that we, in fact, are the agencies that do pay their debts back, one of the very few, and that we are doing and delivering a product the cheapest and in the best way, most efficient way, most economical way, and to the largest number of recipients, and by doing that, then we are doing what the Congress has charged us to do, and that is to provide the cheapest amount of electricity that we can produce at the cheapest amount to the widest distribution of the populace.

I think we're doing it, and I think the evidence will prove that we're doing it. We just need to do a better job of demonstrating publicly, and I guess that means that we need to learn how to sell ourselves better and initiate some very aggressive public awareness and marketing, public marketing, posture to do that. I wish I knew what that was. If I did, I'd probably be in a different line of work. But certainly the need is there, and there are people that are experts in public marketing and public affairs that need to be brought into this process and let us that have the facts and the knowledge help them or them help us present this in the best possible light and with enough emphasis that the public stands up and says to these people that would profit, personally profit from the sale of Federal assets, the giving away, if you will, or the discounting of Federal tax dollars so that they can, as entities, profit from the taxpayers.

We need the taxpayers to stand up and say, "*No*. We have people that are federally empowered to do this. They are charged to do this. They are in place, and they know how to do this. You all go away. We don't need another layer of profiteering in the Federal government. We want to keep that out of the Federal government." We need that public to stand up and to be heard. We need that public to stand up and tell their representation, representatives in the Congress, that would do away with Federal agencies such as Reclamation and Western, that they don't need to be in Congress any longer.

"I think we are doing the taxpayers' bidding the way we are charged to do it by law, and I, for one, would like to see the recognition come back in a more positive light rather than a continual negative light that Federal employees are being placed in. . . ."

Until that happens, I'm afraid that all of us as Federal employees are going to continue to suffer that ~~enigma~~ [stigma] of being a second-class citizen. Having come from the military, I know that feeling well. Now being a retired military type and being a Federal employee, I don't know if that makes me a third-class citizen or what. But certainly there is an ~~enigma~~ [stigma] amongst some folks that we are not honorable people as Federal employees, and I beg to differ with them. I think we are doing a fine job. I think we're doing what we are here charged to do. I think we are doing the taxpayers' bidding the way we are charged to do it by law, and I, for one, would like to see the recognition come back in a more positive light rather than a continual negative light that Federal employees are being placed in.

Storey: We've once again used two hours. So let me ask if you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Boyce: Certainly.

Storey: Thank you.

END SIDE 2, TAPE 2. SEPTEMBER 29, 1997.
BEGIN SIDE 1, TAPE 1. OCTOBER 10, 1997.

Storey: This is Brit Allan Storey, Senior historian of the Bureau of Reclamation, interviewing Harvey W. Boyce on October the 10th, 1997, at about nine o'clock in the morning, in Building 67 on the Denver Federal Center. This is tape one.

"Cost-of-Service-Agency"

What we're going to talk about today is you mentioned one time that Reclamation is a "cost-of-service agency," I believe. Could you tell me what the means?

Boyce: It's an interesting question and timely inasmuch as we just prepared for the assistant secretary a document that gives her a little briefing on that very subject.

Storey: This is Patty Beneke.

Boyce: Patty Beneke, right. In preparation for a cabinet-level meeting between Interior and Energy on some proposed legislation of Energy. Under statute basically and very vaguely related to the 1902 Act which established the Bureau of Reclamation but, more importantly, the Reclamation Project Act of 1939 and the Flood Control Act of 1944 and the Department of Energy Act of 1977, and there are some amplifying pieces of legislation intermixed in there, the Congress directed the secretary of interior, initially, and now Energy, that in building Reclamation projects, those projects which would facilitate a powerplant being added into the project itself the secretary was authorized to *build* a powerplant and to generate power and sell the power therefrom for the purposes of making the project, in total, financially feasible.

Congressional Direction on How Project Power Is to Be Used

However, the Congress also gave in various pieces of legislation, as we've discussed, some very clear direction as to how that project power could be sold. First of all, Federal power from our fifty-eight powerplants is sold or is used first and foremost for the purposes [for which] ~~that~~ the project was built. Secondly, power is used to provide support to other projects that don't have power facilities related to them. A good example is we have a number of reclamation–with a lower-case R–of lands-type projects in the Arizona, Yuma, California borderline area just on this side of the Mexican border that are there basically to keep the Colorado River within its normal path in its normal riverbed.

And, so there's been an extensive amount of work done by Reclamation under various project authorizations to provide for stability of the bank that contains the Colorado, to dredge the river to allow for a clean flow of the river in a designated path rather than periodically making a new path. In some cases the groundwater is actually just below the surface, so we have installed *deep* water wells where we literally extract the water from the ground and we move it to other areas, either for irrigation or, if it's too high in mineral content, we desalinate it and then we turn the desalinated water back to the river to help comply with our treaty obligations with the Republic of Mexico.

We're required under treaty[26] to pass ninety cubic feet per second of Colorado River across the international boundary thereabouts just outside of Yuma. So in order to comply with that, and also that water that passes that boundary has to be of a certain quality, so we've done an extensive amount of work in the Yuma area to comply with the treaty.

The problem is, we don't have major powerplants down there, so the Parker and Davis powerplants located upstream from Yuma provide an extensive amount of project use power to those projects to facilitate pumps, relift pumps, deep well pumps, provide power for the area office that we have located in Yuma. It provides a *small* amount of power to the desalination and to our well fields down there. But that's just an example of a project that's located a number of miles [away] and built for an entirely different purpose of providing power to an adjacent series of projects located some distance away.

Marketing Power to Preference Customers

After we take care of Reclamation project needs for power, then the Congress has permitted us to market that power basically to what we call preference customers. The Congress, again, has given us direction as to what it deems to be preference power. Basically, preference power, in probably the easiest definition, are those entities, whether they be Federal, whether they be state, whether they be county, municipality, whatever, that provide electric service to end users, that end user being the taxpayers. As long as those entities are a nonprofit-type organization, in other

26. The Mexican Water Treaty and Protocol was signed in Washington, D.C., on November 14, 1944. It was ratified by the Senate April 18, 1945; ratified by Mexico October 16, 1945; ratifications were exchanged in Washington, D.C., on November 8, 1945; and proclaimed by the president on November 27, 1945, 59 Stat. 1219. Section 15 of the treaty specifies rates of delivery of water and locations of delivery.

words, they do not have a group of stockholders that have provided the capital money and, therefore, they get a return on their investment, these entities that are preference have the first right to that power which is then surplus to Reclamation's project needs.

Until Creation of Western in 1977 Reclamation Established Rates, Marketed, and Delivered its Power

Prior to 1977, when the Department of Energy was formed, the Bureau of Reclamation performed that marketing and actually power-delivery process and rate-setting process. The rate-setting process was done pretty much on an administrative basis.

"Basically the secretary of the interior, based on the recommendations of staff of Reclamation, established the rates. There was no–or if there was *any*, it was certainly minimal–opportunity for the end user or the rate payer . . . to have any say as to how it was developed, the rates that they were charged. . . ."

Basically the secretary of the interior, based on the recommendations of staff of Reclamation, established the rates. There was no–or if there was *any*, it was certainly minimal–opportunity for the end user or the rate payer that was paying for this power to have any say as to how it was developed, the rates that they were charged.

Marketing and Rate-setting Functions Transferred from Reclamation to Western

With the advent of the Department of Energy in 1977, the function of marketing and rate-setting was transferred from Reclamation to the Department of Energy–the power and marketing administration. In the case of Reclamation, that's principally Western Area Power Administration. During my tenure with Western Area Power Administration, and certainly in the Lower Colorado Region, that was my function. I was there to develop those power rates for the projects in the Lower Colorado Region, that being Hoover and Parker and Davis and also the Navajo steam plant.

The criteria that was used for setting the rate, again, is–well, it's departmental policy, and it started off being a secretary of the interior order. I believe it was 2929 or it was 3939, and I never can remember which is the right one, but I believe it was 2929.[27] That secretarial order was issued in, I believe, the late sixties. Subsequently, that order was, more or less, formalized into one of the Department of the Interior manuals, 730DM3 and DM4. The DM4, I believe, really just addressed one subject matter, and that was principally the setting of interest rate for the repayment of Federal investment.

With the establishment of the Department of Energy, the secretary of energy issued a subsequent document which basically is in place today and is the follow-on

27. As a Supplement to the Department of the Interior Departmental Accounting Manual, Secretarial Order #2929, issued by the secretary of the interior, January 29, 1970, (Power Marketing Administration Financial Reporting), was intended to clarify administrative policy for establishing annual interest rates for calculation of interest during construction (IDC) and interest on investment (IOI).

document that replaces 730DM3 and 4. That's identified as RA6120.2, as it's been amended, supplemented. That order applies to all power marketing administrations. So Western Area Power, the Southeastern Power Administration, Southwestern Power Administration, the Alaska Power Administration, and the Bonneville Power Administration *all* have to comply with that particular order. But that order's authority is based on some key pieces of legislation, and specifically 9©) of the 1939 Reclamation Act,[28] the 1944 Flood Control Act,[29] and the Columbia Basin Act, and there's one that deals with the establishment of Bonneville Power Administration.

In that secretarial order, RA6120.2, among other things, it tells the power marketing administration, as well as Reclamation, how the financial records are to be kept, but it also establishes the process of setting power rates at the lowest possible level consistent with sound business principles. It prescribes a priority of the revenues or for the use of the revenues that comes from the power rates. So if we sell an amount of energy in kilowatt hours from a project that is excess of our project needs, then we apply this rate per kilowatt hour, and it's generally in mils, which is like a hundredth of a cent, times each kilowatt hour. That's the way it is sold to the entities that are purchasing it.

Rates Have to Cover the Debt and Interest Attributable to Repayment of the Powerplant as Well as O&M Costs as Well as Any Other Incidental Costs

The revenues that we gain from that have to go first to pay for the operation and maintenance cost for each year. So on an annual basis, the power rates must be sufficient to recover that year's cost of operation and maintenance of the powerplant. It also has to recover any interest that has accrued on the long-term debt for that power facility. So on an annual basis we have to have rates sufficient to generate revenues that pay O&M costs, operation and maintenance cost, the interest on debt, plus *any* annual replacements to the project.

And then in some instances–and again these are unique to various projects–there are other annual costs that have to be met and satisfied. For example, at Hoover there is an obligation for the United States to pay to the state of Arizona and to the state of Nevada a flat annual fee of $300,000 each, and this fee is the government's recognition of loss of property tax for the land that has been identified for the Federal area there surrounding the location of Hoover Dam. So that has to be paid each and every year. That money has to come from the sale of power. Each project may have its own uniquenesses similar to that or they may not.

In addition to recovering revenues sufficient to pay those annual costs, then the rates have to be set sufficiently high enough to recover, over the fifty years of repayment period authorized by law, the costs or the dollars advanced from the Treasury to build the project. In this case, it also would include *any* cost of any *other* project or even that project, whichever the project may be, that has been allocated of our multipurposes of a project. If there is an allocation of certain costs of other

28. The Reclamation Project Act of 1939 of August 4, 1939, ch. 418, 53 Statt. 1187).
29. The Flood Control Act of December 22, 1944, ch. 665, 58 Stat. 887.

purposes of the project that are to be recovered from other than that project purpose, then that can also be a burden of the power users.

Storey: An example, maybe?

Boyce: An example could be river mitigation, endangered species, environmental. If the government determines that generation of power or the flow of water resulting from that generation is causing a detriment to the composition of the water, the river bottom, the river embankments that's damaging to the fish, to the indigenous fish, than the power users can be assessed, if you will, a fee to help mitigate those costs. Reclamation is presently looking at regulations to even look at the damage that is done by running the water through the powerhouse in such a matter as to provide peaking power, to provide seasonal diversity, such that it will cause downstream river flows to fall or rise.

We have that situation on the Colorado south of Glen Canyon Dam, where we are actually now going in periodically and doing somewhat of a surge release of water to help flush out the debris and the silt and the buildup along the lower reaches of the river there to improve beaches, to improve fish and wildlife, to improve it for the recreational people.

All of these things have to be paid by somebody. While one could argue that they're for the general use of the taxpayer and, therefore, they should not be subject to reimbursement or reimbursed, the Congress has given us some direction, and so at least some of those costs are being charged back against the way we are operating the plant to generate power. So the power users end up paying for at least that portion of it.

Reimbursable and Nonreimbursable Costs

General rule that we fundamentally live by is that if the cost is something to provide a general benefit to the taxpayers as a whole, then that properly is deemed to be nonreimbursable. In other words, it doesn't *have* to be repaid back to the Treasury, because it's a cost of the *government* providing services to the general taxpayer. On the other hand, if the benefits and the costs associated with the benefits are provided to a very narrow population of beneficiaries–for example, power users–then the Congress has said, "No, they need to pay for that cost."

Congress Shifted Some Irrigation Repayment Responsibility to the Power Community

Congress has also said if the people that are using the results of Reclamation projects to perform irrigation and to reclaim these lands in the Desert Southwest, if the cost of those project repayments are so great that the yield from the land by the farmers that are using that irrigation facility, if it becomes such that those farmers cannot plant and harvest crops and sell them competitively at market, then that difference for them to make a profit at market in the selling of their crops, that is then deemed through a formulation process and a determination by the secretary of the

interior to be cost of irrigation that is over and above the irrigators' ability to repay. That cost is then brought back over to the power community to repay, and that's a significant–it's nearly a $9 billion– with a "B"–obligation since 1902 through 1994. It may be even greater today.

". . . of nearly $13 or $14 billion, we've maybe got $6 billion in round figures in Federal facilities directly attributable to power generation, and then the *balance* of that is costs that have been burdened onto the power user to repay. . . ."

We haven't finaled-out the numbers, at least through '97. So we don't know what that number is. But certainly in '94 it was nearly $9 billion. Now, that's $9 billion out of a total of about $13-point-I believe it's 6 or 7, billion dollars of Federal Reclamation assets that have to be repaid by the power users. So of nearly $13 or $14 billion, we've maybe got $6 billion in round figures in Federal facilities directly attributable to power generation, and then the *balance* of that is costs that have been burdened onto the power user to repay. Now, they don't have to pay it annually. They pay annually, as I discussed earlier, but then there are those capital costs which have a fifty-year life cycle in which to be repaid.

For example, Hoover, Boulder Canyon Project, had about $120 million, as I recall the number, roughly, from 1937 to 1987 that had to be repaid, and it was repaid on time, actually a little bit ahead of time, from the sale of power. Parker-Davis Project's number is somewhere in the order of magnitude of about 80 or $90 million, as I recall, from the early 1940s to the year 2002, as we discussed at our earlier session, when Parker-Davis is to be repaid. All of that debt has already been repaid, and it was repaid following the criteria of RA6120.2, which allows, after we have rates that satisfy at a minimum the annual cost plus the repayment of the debt, then it says that if we have surplus water, which occurred like in 1983 when we have high streamflows in the Colorado River, and we are in the situation even in 1997 where we had some high streamflows, probably will occur again in 1998.

Then that *power* that is generated as the result of Reclamation needing to move the water down the stream in an orderly process so that we don't create a flooding situation, then that power that was generated in excess of what we originally anticipated to be generated is sold basically to the same customers that we have contracts with. Certainly they have the first right to refuse it, and they also get it at the existing price or, in some cases, even at a discount price to encourage their using that surplus power that is resulting from our moving the water downstream in an orderly process.

If we don't sell that power, then the water still must flow downstream in these high flow periods, and water that passes a powerplant without being generated is, in effect, water that does not produce revenue. So to not run Colorado River water or Columbia River water through the generators, even if you sell it at what in the market is called dump rate, which means just whatever it takes to sell it, and generally this would be off peak and at night and when, if, and as-available power. But, nevertheless, its creating some dollars. Well it's like profit. It's, in effect, *revenue* that you are not really anticipating to occur in that year.

In 1982, "we were spilling water, so we were losing revenues because water was having to be *bypassed* around the dams . . . and we were generating. We had all the generators running absolutely wide open. The power that was sold from that, which was in excess of what we thought we would generate in that year, was all sold as surplus energy, and all the revenue from *that* surplus energy was then used to, in effect, accelerate the retirement of the unpaid debt of Parker-Davis to the ~~fact~~ [effect] that it was totally repaid. . . ."

So that revenue that is surplus to the annual needs in the orderly repayment of a project is authorized by Congress to be used to *accelerate* the retirement of that *debt*. And that's exactly what occurred to Parker-Davis. In 1983, while I was director of marketing and rates–

Storey: At WAPA.

Boyce: At Western, yes. There was such a high flow and actually we were spilling water, so we were losing revenues because water was having to be *bypassed* around the dams to protect the dams through their spillways, and we were generating. We had all the generators running absolutely wide open. The power that was sold from that, which was in excess of what we thought we would generate in that year, was all sold as surplus energy, and all the revenue from *that* surplus energy was then used to, in effect, accelerate the retirement of the unpaid debt of Parker-Davis to the ~~fact~~ [effect] that it was totally repaid.

So the 1968 Act [as amended by the Hoover Power Plant Act of 1984] that created the Central Arizona Project and, as we talked about, the assurance that it would cause the Parker-Davis Project to be paid off at the year ~~2002~~ [2005][30] has already been satisfied. Anytime there is additional revenues coming from high streamflows over and above what the norm would be, that revenue then has some other criteria. And, again, it was established under the '68 act. The surplus *then* can, in effect, go to start retiring the debt of the Central Arizona Project.

"After we've satisfied the repayment of Boulder Canyon Project, then *any* surplus revenues, by law, according to the '68 Act, will flow back into the Lower Colorado River Basin Development Fund to be used to retire the construction cost of the Central Arizona Project. . . ."

That is also true for the Boulder Canyon Project. After we've satisfied the repayment of Boulder Canyon Project, then *any* surplus revenues, by law, according to the '68 Act [as amended by the Hoover Power Plant Act of 1984], will flow back into the Lower Colorado River Basin Development Fund to be used to retire the construction cost of the Central Arizona Project. So the crafters of the '68 legislation were very shrewd, very wise, and they basically ensured that *anything* over and above

30. Title 1 of the Hoover Power Plant Act of 1984 at section 102©) amends section 403©) of the 1968 Act by inserting the proviso ". . . Boulder Canyon Project commencing June 1, 1987, and for the Parker-Davis Project commencing June 1, 2005, and until . . ." Thus fixing the end of the first 50-year repayment period for Parker-Davis Project as June 1, 1955 to May 31, 2005.

the normal cost of doing business at Hoover and Parker and Davis, if you will, a profit, would be used to retire debt of a very expensive–

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Boyce: . . . Central Arizona Project.

Storey: That expensive water project.

Boyce: That very expensive water project that is now in litigation. So, the criteria set out in first [an] Interior secretarial order and then [in the] departmental manual and now [in an] Energy secretarial order is that power rates have to be such to provide for the annual operation and maintenance and replacement of the project, to keep it operating and maintained in good condition, retire the debt, retire any other obligations laid on the power community, and then after all of that's done, the revenues are to either be returned, generally are to be returned, back to the general treasury with certain exceptions, notably the '68 Act requirement that says Hoover, Parker, and Davis surpluses go to retire the debt of the Central Arizona Project.[31] Now, conceivably some point in time Central Arizona Project gets paid off and then the surplus revenues from Hoover, Parker, and Davis would then flow back to the general fund of the Treasury.

Storey: That surplus goes into a fund, does it?

Boyce: From Hoover, Parker, and Davis it goes to the Lower Colorado River Basin Development Fund.

Storey: And then that can be allocated to pay off CAP or *has* to be allocated?

Boyce: It's not even allocated. The law directs that it goes directly for repayment. Once it goes into the Lower Colorado River Basin Development Fund, it is *there*, by law, specifically to retire debt. So, as I said, the people that drafted that legislation were very shrewd in doing it, and they basically provided for assistance. You can say, in effect, here is the situation where a water project is getting the assistance from the power community. It's not *inconsistent* with the way we do business. It's just very specific instructions as to *how* we'll do business.

Hayden-O'Mahoney Amendment

In other projects, there is an amendment that applies basically to most of general Reclamation law, but certainly applies to those laws that set out the criteria for power sales from Federal projects. That's the Hayden-O'Mahoney[32] Amendment, and in there it basically says that when a project is *totally* repaid and *all* the costs are satisfied as determined by the secretary, then any surplus revenues goes back to the

31. The Colorado River Basin Project Act of September 30, 1968, P. L. 90-537, 82 Stat. 885, in Title IV provides for creation of the Lower Colorado River Basin Development Fund in the Treasury of the United States.
32. Carl Hayden of Arizona and Joseph C. O'Mahoney of Wyoming

general fund of the Treasury. Well, the end product there is that you reduce national debt. And that's probably an appropriate thing to do.

". . . our power rates are not only paying our annual costs, but our power rates are *retiring* national debt. That money which was advanced from the Treasury early on to build the project, these are now being *retired*. Parker-Davis and Hoover's original construction *are* physically retired. They are no longer part of the national debt. . . ."

Now, recall in our last session, our power rates are not only paying our annual costs, but our power rates are *retiring* national debt. That money which was advanced from the Treasury early on to build the project, these are now being *retired*. Parker-Davis and Hoover's original construction *are* physically retired. They are no longer part of the national debt. Now, the revenues that are over and above the cost of annual operation and maintenance and repair of the facility is *now* from Hoover, Parker, and Davis available to go forward into the Lower Colorado River Basin Development Fund and help retire *that* portion of the national debt that is associated with the construction of Central Arizona Project.

So over a long period of time, if we were all here to watch this process come to conclusion, we would see that the power sales from Reclamation projects would, in fact, repay much more than just the power facilities. It would cause a lot of projects that were built for general Reclamation purposes to be repaid from the sale of that power that comes out of our fifty-eight powerplants. We're not seeing it *today*, but given the passage of time, 1902 to 1997, ninety-five years, we've seen some instances of it, particularly Parker-Davis and Hoover. I would suspect that given another ninety-five years or even less than that, we will see more and more debt being *retired*, especially in light of the fact that Reclamation is no *longer* in the business of building new facilities.

So, as I said earlier, we are one of the premier agencies of the Federal government that we not only pay our own *way* and we pay for our own employees, but we are also helping to retire *debt* incurred by other agencies for the general benefit of the taxpayer. And it's unfortunate we don't market that to the general public. I guess if we did, maybe the general public wouldn't have such a distorted view of what Reclamation's all about. Too often, and I hear this daily, I heard it just the other day at Hoover, you hear people say, "Well, that's my tax dollars." You know, "Those are my tax dollars that are being used here."

And the answer is, no, they're not. There's not one dime of your tax dollar there. First of all, you didn't pay the taxes that was in the Treasury in 1935 and '36 and '37 that was advanced to pay for the construction. Maybe your grandparents' dollars were there, but certainly no one alive today. I dare say that their dollars were ever advanced for the construction of Hoover. And then I would also say the power community has also *repaid* those dollars for the original construction of Hoover, and the power community today that is buying power from Hoover is paying for every dollar of expense. So when the taxpayers show up and say, "Well, my tax dollars

paid for this and I should be given certain privileges," my answer is, "No, your tax dollars did *not*, and you *have* no special privilege."

". . . the power users that pay for this facility *do* have a right to say that, and they are afforded a special privilege. They are afforded to join with Reclamation, to join with Western Area Power [Administration], and have a voice at the table in how that project is managed. That's a new way. It's a new direction for Reclamation, very new concept. . . ."

But the power users that pay for this facility *do* have a right to say that, and they are afforded a special privilege. They are afforded to join with Reclamation, to join with Western Area Power [Administration], and have a voice at the table in how that project is managed. That's a new way. It's a new direction for Reclamation, very new concept. It's the wave of the future. It's our partners now, just like a regular partnership of a *business*. We have partners. We have those people that are the cash register, and they are providing the money, and they, in turn, have a *right* to sit and counsel with us as to how we will spend their money.

This is a new era for Reclamation to get into these type of contracts for the sale of power where the customers are now acting as the bank instead of the Treasury acting as the bank. And with that transition to basically *our* board of directors now, *our* stockholders, if you will, while they don't get a return on their investment, per se, in the term of a profit, they certainly have the right, as any group of stockholders and board of directors do, to sit down and counsel with those of us that are spending their dollars on how those dollars will be spent. So this is an entirely new trend–direction for Reclamation in the power community.

Storey: When did that start, do you know?

". . . it started with the 1990 implementation agreement for Boulder Canyon Project . . . and it says this is the way we will do business. The power customers, on an annual basis, will provide all of the funds to operate, maintain and repair Hoover, and for that consideration they are entitled to all of the power from Hoover. Plus they are also entitled to sit down on a quarterly basis with their technical experts and on an annual basis with their corporate management and *our* corporate management to *discuss how* their dollars are being utilized . . ."

Boyce: Basically it started with the 1990 implementation agreement for Boulder Canyon Project, which ~~is~~ amplified 10 CFR 04 and 43 CFR 431, the two *Code of Federal Regulations* we discussed, which govern the sale of power and the operation and maintenance of Hoover from 1987 until 2017. This implementation agreement is a formal document. It's signed by all the power customers, Reclamation and Western's commissioner and administrator have signed it, and it's a binding document, and it says this is the way we will do business. The power customers, on an annual basis, will provide all of the funds to operate, maintain and repair Hoover, and for that consideration they are entitled to all of the power from Hoover. Plus they are also entitled to sit down on a quarterly basis with their technical experts and on an annual

basis with their corporate management and *our* corporate management to *discuss how* their dollars are being utilized or are to be utilized.

Parker-Davis Project has just set forward contracts to provide the same type of arrangement with their customers. They're up for execution. The Central Valley Project is doing a like set of documents for their customers. I believe there's one other project. I believe it's Pick-Sloan that's into the negotiation of documents like that.

"They basically prepay for their power by advancing us our annual O&M and replacement money. So they advance the money. But what they've done is they bought their power in advance of their receiving it. They don't get a *return* on their money; they just get the service for the money. . . ."

So, in this new era of accountability, in this new era of Government Performance [Results] ~~Requirements~~ Act, we in the Bureau of Reclamation and Western Area Power Administration, while we are still using the same criteria for the way rates are established and the fact that they are going to be cost-based, we don't pay the stockholders any money. They basically prepay for their power by advancing us our annual O&M and replacement money. So they advance the money. But what they've done is they bought their power in advance of their receiving it. They don't get a *return* on their money; they just get the service for the money.

So even though we have stockholders now, they are not-for-profit; they are public entities. They can't receive a profit any more than the United States can. So we are still consistent with the law. We are still consistent with regulations. It's just we are doing business differently than we've ever done it before. It's a challenge to us. It's a very different concept. It's been a difficult concept for a lot of folks to grasp and to understand, and it is also now requiring Federal employees to be held accountable to those people that are advancing that money. It's going to be an interesting new government and it's going to be an interesting new Reclamation as we move off into this arena.

It now makes Reclamation and Western, from the *power* perspective, *look* like, *act* like, and *smell* like a true business entity. And in the past, we never considered ourselves to be that. Even though we participated in a business-type relationship with our constituency, now at least the power portion of our business is now a *true* business, and it can be identified as such, it can be accounted for as such, and we are *going* to be held accountable. We are *being* held accountable, and it's just a change–an evolution is probably the better term–of the philosophy of the Federal government taking care of everybody, now it's everybody starting to take care, or at least certain selected parties are now starting to take care of their own resources, and their own resources in this aspect is that which is held by title in the United States. But remember the United States is, in fact, the citizens. The citizens are also people that are *taxpayers*, and those taxpayers are also, in some cases, *power* users.

So here's the next step, I guess you might say, in the evolution of our democracy as it works. It's exciting. It's very challenging. It's very frustrating for folks to get a grasp on, but it makes infinitely good sense.

Storey: Tell me about the interest that's being repaid through the power.

Boyce: The interest that's being repaid is fundamentally interest on the unpaid advances from the Treasury, so Treasury is taking and charging the project a fee for the use of that taxpayer's dollar that was originally advanced to build the project. So when the project is repaid, such as Hoover and Parker-Davis has been repaid, not only did the original investment that was advanced for the construction of the project, that's all been repaid, but also interest on that money having been *loaned* to the project, has been repaid back to the general fund. So the taxpayer, in this case the stockholder, if you will, of the Treasury, has received a return on their investment.

Storey: But some Reclamation debt does not have any interest, I believe. Where's the line drawn?

Boyce: That's true. The line drawn, again, is from the perspective of the Congress having said that for those activities that are done and money is advanced from the Treasury and facilities are constructed, first of all, the Congress makes the determination whether it has to be repaid. And that's where we get the term of "reimbursable" or "not reimbursable."

If Congress determines that it's for the general good of the country. It basically says the cost of doing business as a government is something that is what taxpayer dollars are for, and if it means that we have to build something or prevent something by the building of a facility, that is for the general good of the populace of the United States, then Congress is more than likely to come back and say *that* cost associated with building whatever it is or the facilities to control whatever it is the Congress feels is in the general interest of the public, that's deemed to be non-reimbursable. In other words, the taxpayers have paid for that through their tax dollars, and that's the cost of being a citizen of the United States.

Congress's Determinations Regarding Financing of the Boulder Canyon Project

In those cases where the Congress determines that, no, these costs associated with controlling something or building a facility to control something *should* be repaid, the Congress then can determine whether or not they have to be repaid with interest or not. An example of this is there was in the original Hoover appropriations of $165 million. The Congress in 1940, I believe it was, under the Boulder Canyon Project Adjustment Act,[33] said of the amount advanced or appropriated, if you will, from the Treasury to build Hoover [Dam and Powerplant] and the All-American Canal, $25 million of that was identified by Congress in law. The law said the first $25 million of that advance is deemed to be for flood control, and it is to be reimbursed, but the reimbursement of it was deferred for fifty years. In other words, of the original project cost of Hoover of the $165 million, $25 million the Congress

33. The Boulder Canyon Project Adjustment Act of July 19, 1940, ch. 643, 54 Stat. 774.

said does not have to be repaid until after June 1, 1987. It also said that that deferment was without accrual of interest.

So $25 million was advanced, sat dormant, if you will, for debt, sat dormant for fifty years without the accrual of interest. Then June 1, 1987, coming along, that $25 million *now* has to be repaid, is being repaid by the present power contractors. It will be repaid over fifty years. And because the Congress had deferred it at no interest and the Congress did not give any further direction about any interest rate, it is being repaid without interest. But the $25 million *is* being repaid, nevertheless. The only thing that Congress said is you don't have to pay it in the first fifty years, but you've got to pay it in the next fifty years. And it said there will be no accrual of interest in the first fifty years, and without further direction from the Congress, we have interpreted and we have basically legal opinions that says you'll repay it, but you'll repay it without interest.[34]

"Now, this is also true of that ~~irrigation~~ cost of irrigation projects that is over and above the irrigators' ability to repay. Even though that cost is to be repaid by the *power* users, there is *no authority* given by the Congress to Reclamation to charge interest on that amount. . . ."

Now, this is also true of that ~~irrigation~~ cost of irrigation projects that is over and above the irrigators' ability to repay. Even though that cost is to be repaid by the *power* users, there is *no authority* given by the Congress to Reclamation to charge interest on that amount. And, quite frankly, there is language in various documents, associated legal opinions from the attorney general, etcetera, that basically says Reclamation is not obligated to charge interest on irrigation projects. So those people that have the benefit–the irrigators, if you will–of Federal money advanced to build facilities for them to reclaim land and to put it under cultivation and to grow crops and sell those crops at whatever they can get at market, they have, in effect, a no-interest loan. And if they can't repay all of that loan, than the power users pick up that portion that they cannot repay. But there is no obligation, to begin with, for that loan to have a repayment back to Treasury, of an interest component, and, subsequently, there is no obligation on the *power* users who are picking up that irrigation portion over and above the irrigators' ability to repay, to likewise pay interest.

So that's where we have reimbursable but reimbursable *with* or reimbursable *without* interest. Reimbursable is project costs associated with power, and typically those have been 3 percent. Now they are the general interest rate of the United States Treasury, which is in order of magnitude 6 or 7 or 8 percent on an annual basis. So

34. Interviewee's note: Pursuant to the Boulder Canyon Project Adjustment Act of 1940, the repayment of the $25 million allocated for flood control was to be deferred during the first 50-year repayment period (6/1/1937-5/31/87) and during that deferral period the $25M was not to accrue interest. Further it (the Adjustment Act) states that the repayment of the $25M beginning on June 1, 1987, would be subject to the direction of the Congress. With passage of various legislation that impacted the Boulder Canyon Project from the 1940 BCP Adjustment Act to and including the Hoover Power Plant Act of 1984, the Congress gave no further direction relative to the $25 million allocated to flood control. Hence, the direction given by the Congress in the BCP Act of 1928 is relied upon for the ultimate direction and intent of the Congress. The direction found in the 1928 Act was that all funds associated with the construction of Hoover Dam and appurtenances would be repaid with interest.

the stockholders of the United States Treasury, being the citizens, to some degree, are getting a return on their tax dollar.

Storey: We talked a little bit at the last interview about why you decided to go to WAPA, to Western, instead of staying with Reclamation. Were there any looming reductions in forces or anything like that, that were pushing people to make decisions at that time?

"The power generation functions certainly stayed with Reclamation's powerplants. Those positions didn't disappear. But the marketing, the rate-setting, the contracting for power, all of those functions basically moved over to Western. . . ."

Boyce: There certainly was a lot of rumor, more than fact, relative to reductions in force. And, of course, hindsight's 20-20. In fact, those positions that were associated with power and power production and power transmission that were identified and transferred over to Western Area Power Administration, those positions were lost. In effect, Reclamation's divisions of power within the organizational structure disappeared. The power generation functions certainly stayed with Reclamation's powerplants. Those positions didn't disappear. But the marketing, the rate-setting, the contracting for power, all of those functions basically moved over to Western.

"Additionally, Western, as a new organization, had to develop its own infrastructure. It had to have a headquarters office. It had to have staff to do personnel functions, to do purchasing, to do warehousing, motor pool, land, buildings, all of that. And so the truth be known–and this is my own opinion–the Congress and the administration at that time in its development of the Department of Energy, lost sight of what they were trying to do, which was to make government more accessible and also to begin to reduce government. . . ."

Additionally, Western, as a new organization, had to develop its own infrastructure. It had to have a headquarters office. It had to have staff to do personnel functions, to do purchasing, to do warehousing, motor pool, land, buildings, all of that. And so the truth be known–and this is my own opinion–the Congress and the administration at that time in its development of the Department of Energy, lost sight of what they were trying to do, which was to make government more accessible and also to begin to reduce government. In fact, if you look at the total employees at the time Western was formed, drawing from employees from Reclamation, there's not a significant reduction of total personnel. In fact, I think you will find that there's probably an increase. In some instances, Reclamation had to replace people that transferred to Western. Western had to go out and hire new people to help form Western. So I guess at the start-up of Western, over the first four or five years, it would be very easy to demonstrate that the taxpayers were somewhat hoodwinked.

"The other thing that occurred and caused people to make the decision to take the opportunity to transfer to Western from Reclamation was opportunities for promotion, for professional growth. . . ."

The other thing that occurred and caused people to make the decision to take the opportunity to transfer to Western from Reclamation was opportunities for promotion, for professional growth. That was the decision that was my driving factor. I was in a position that basically there was no real foreseeable professional growth and certainly no opportunity for promotion. Within the Department of Energy and Western Area Power Administration, I saw the opportunity for not only professional growth, but also for promotional opportunities. Certainly it's the way it turned out.

"Within three years of leaving Reclamation to go to Western . . . I basically went from a GS-9 accountant to a GS-13 Supervisor public utility specialist. . . ."

And that was true throughout the organization.

". . . the grade structure within Western was *about* one grade higher, and that's true even today. . . ."

Quite frankly, right or wrong, I'm not making judgment here, the grade structure within Western was *about* one grade higher, and that's true even today. Those people that would be of comparable position between Reclamation's now power organization, our power chiefs are about one grade lower than their counterparts in Western, and in some cases they're even two grades lower. So I guess the logic of promotional opportunity is still being borne out, and that's why I think a lot of people left.

"I think it's also true . . . Western's organization was put together primarily by people that were not of a lot of seniority within Reclamation. So they were the ones who took the opportunity for promotional opportunity–for professional growth . . ."

I think it's also true, if you were to go back and analyze the age group, and I don't mean age in years, but age in seniority, Western's organization was put together primarily by people that were not of a lot of seniority within Reclamation. So they were the ones who took the opportunity for promotional opportunity–for professional growth, that moved over to Western. It's interesting to note that this weekend up at Estes Park there's going to be a reunion to be–

END OF SIDE 2, TAPE 1. October 10, 1997.
BEGIN SIDE 1, TAPE 2. October 10, 1997.

Storey: This is Brit Allan Storey with Harvey W[alter] Boyce on October the 10th, 1997. [This is tape two.]

Boyce: So, many of us who were the original group to go to Western are going to gather and partake of a little spirit and good company and good conversation and reminisce about the good old days. These people, for the most part, are still actively involved either in Western or they've gone on to private ventures of their own, and are still now in my age group that either *have* retired or are *soon to* retire from Federal

service. So that would say that those people that went to Western twenty years ago were basically a third of the way into their Federal career of thirty years. They've now moved through their full gamut of thirty years of service or thereabouts, and have completed, if you will, or certainly transited through their spectrum of Federal service.

Storey: How were people at Reclamation reacting to the creation of Western?

"There was a lot of bitterness amongst those that did not go or who were not selected to go if they wanted to go. I think a lot of the problems stemmed from the fact that there was an increase, at least a one-grade increase, for most employees going over. . . ."

Boyce: Well, it kind of depended on whether you were going or whether you were staying. There was a lot of bitterness amongst those that did not go or who were not selected to go if they wanted to go. I think a lot of the problems stemmed from the fact that there was an increase, at least a one-grade increase, for most employees going over. That's probably more personal feelings than not, but, nevertheless, there seemed also to be some general resentment of those that didn't go. There was resentment of those that did go, because as they tried to work back and forth with Reclamation, barriers seemed to evolve. It's a shame, and I'm even embarrassed to say that I still see evidence of that some twenty-odd years later, not to the degree that it was and *not even* to the open *hostility* that was demonstrated in the early days of Western. It's hard to understand what drives people to feel that way, and they were probably more personal problems than general problems.

I guess, as a corporate perspective, it's kind of like the old master watching the young whippersnapper learn to swim, so to speak, and there was a lot of growing pains as Western got an understanding of what it was that the organization was to do, and what its corporate philosophy was going to be, and how it was going to be implemented. Certainly in the early years there was a *great deal* of dependence upon Reclamation. Some of that support from Reclamation, I would even go so far as to say the majority of the support from Reclamation was willingly given. But certainly there was also evidence of reluctance to give some support. More often than not, a lot of the criticism was more of a good-natured comment between Reclamation and Western employees.

"I did see personally and I know others have expressed to me that they saw personally some very, very *deep resentment* demonstrated by employees on both sides directed at the other side. It's unfortunate. . . . and I think a lot of people were pleased for others to have an opportunity to grow professionally and to excel as far as grades are concerned. . . ."

I did see personally and I know others have expressed to me that they saw personally some very, very *deep resentment* demonstrated by employees on both sides directed at the other side. It's unfortunate. Again, only knowing what the personal driving motivation would answer why that was. Most of it was in good nature, and I think a lot of people were pleased for others to have an opportunity to grow

professionally and to excel as far as grades are concerned. But certainly it did leave a bad taste, I think, in some people's mouth, both Reclamation and even at Western, because when you feel like you're doing a good job and others take and criticize it for reasons that are really not justified, it's hard to understand, and it doesn't leave you with a good feeling.

Storey: Do you have any specific examples that you would be willing to share?

Boyce: No. Thank God for time, because over time, a lot of those memories have faded. Any comments that I've heard lately are more in the context of people just using it to needle you more than actual resentment. But I hear it, even to this day. I guess it's their nature, is the only way I can look at it, is some people's inability to–or lack of confidence, their way to combat that is to find fault with others. It's always easier, of course, to point the finger at those that have left and gone and criticize them as the cause of the problem when, in fact, it might be the individual.

That's why I say I think most of the resentment is *really* on a personal basis and, quite frankly, it's becoming less and less because more and more of those people that were around in 1977 are gone. They've either moved on to other agencies or they've retired or they're out of this particular venue anymore. But there are still a few, and I dare say within the next twenty years, ten to twenty years, they will all be gone, and maybe this turf-guarding or this turf battle will finally die its ugly death. It certainly has lasted longer than it ever should have.

Even though at the corporate level we have agreements and partnerships in place and that, it's the old adage, "you can take the horse to the trough, but you can't make it drink." Management can pass on it and sign all of the documents that they want about working together and being nice people, but that does not take away from the personal one-on-one relationships that are out there. Until those people are gone and their own personal resentments go with them, we're not going to see that era die until then.

Storey: The next question is sort of a three-pronged question. If you could think back to '77, what did Reclamation think was the reason for the creation of WAPA in the Department of Energy? What did *Western* think was the reason–back then? The third part of the question is, what's the reality that you've come to conclude over the years?

Boyce: Let me start by addressing why I think it occurred, and I'm not sure that it's directed specifically at Reclamation, but in a way it is, at least from my certain knowledge and from discussions with customer groups over the years. The very reason, or the very process that I talked about earlier about the way Reclamation set power rates, which was basically staff recommendation of the commissioner and the commissioner either acting *for* the secretary or the secretary himself signing the rate orders with little to no input from the outside world, if you will, from the customer group. There was, at least the discussion I've heard–there was an opinion that Reclamation's staff was a very aged staff. It was people that had been around in the early process of Reclamation who were reaching or maybe should have already retired, commonly

referred to in any organization as "dead wood," or they were people that were retired, in fact, in place, and they had the mind-set that while it was good enough fifty years ago, it's obviously good enough now, and it will obviously good enough for the next fifty years. That's stagnation. That is not progress. That is not being responsive to the time.

Customers started to become very resentful of the fact that *power* costs were now starting to creep up from the *old* traditional three-mil energy that we charged everywhere for years.

Storey: That would be three mils for?

". . . early 1970s, we started to see generally within Reclamation power projects what we would call rate creep. Power rates were starting to move *up* a little bit. . . . The customer groups throughout the West were going to their congressional delegations and they were complaining, 'We have no say, and these Federal employees are just gilding the lily . . . and when they spend money, it goes into the rate base and the rates have to go up and we have to pay it, and we want to have a say in that.'. . ."

Boyce: Energy. For a kilowatt hour of energy. So, beginning in, I guess, probably the 1970s, early 1970s, we started to see generally within Reclamation power projects what we would call rate creep. Power rates were starting to move *up* a little bit. They were getting a little bit higher than three mils. They were going up to four mils or four and half mil. In fact, when I came on board Western, Parker-Davis Project was up to *five* mil energy rates. The customer groups throughout the West were going to their congressional delegations and they were complaining, "We have no say, and these Federal employees are just gilding the lily, and they've got a blank-check mentality, and they just *spend* money willy-nilly. There's no reason for the way they're spending money, and when they spend money, it goes into the rate base and the rates have to go up and we have to pay it, and we want to have a say in that."

"The marketing and the rate-setting portion of Reclamation's power was taken away and moved over to this new, young, more accessible entity. Western Area Power was formed along with the other existing power marketing authorities. And with it also came some new direction from Congress to these new agencies, and that was that you had to be responsive to the general public. . . ."

So enough of them convinced enough congressional leadership and congressional members, that the 1977 DOE Act was formed. The marketing and the rate-setting portion of Reclamation's power was taken away and moved over to this new, young, more accessible entity. Western Area Power was formed along with the other existing power marketing authorities. And with it also came some new direction from Congress to these new agencies, and that was that you had to be responsive to the general public. You had to be responsive to those people that pay those power rates. Indeed, there was a litany of Federal regulations that came out that said you *will* hold *public* meetings, your business will be done in a fish bowl, you *will*

display all of your justification and *all* of your rationale and all of your evidence. Just like a court of law, you *have* to do this now. Reclamation never had to do that before.

"So the genesis of why Western Area Power, DOE . . . was the evolution of the rate payers *demanding*–it's their first attempt, actually–at demanding more involvement in their own destiny. . . ."

Now, the contracts that I discussed earlier with Hoover today, the Hoover implementation plan, the new Parker-Davis contracts, the new Central Valley Project contracts, is actually another phase of this. They're getting even *more* involved, but they're getting more involved to the tune that they are *paying* for their power before they receive it. So I guess it's the natural evolution of the business.

I'm sure those that were, as they say, the dead wood of Reclamation, would have a different opinion as to why it was done. But certainly it precipitated much like the reinvention process is precipitating today in this administration's time. The movement or the transfer or the retirement of these people that were the old guard of Reclamation, if you will, who had the very, some would say, stodgy mentality, "It worked good fifty years ago. It'll work good today. It'll work good for the next fifty years." The nonprogressive thinkers. It afforded them the opportunity to take advantage of the reorganization of Reclamation and move on, and moving on may have been just retiring. In most instances it was, in fact, retiring.

Reinvention has caused a lot of that. Again, those who have reached kind of the pinnacle of their career to where they are either near, or at, or even a little bit beyond their typical thirty-year Federal career, of course, Congress had authorized a little incentive program this time to the tune of $25,000 for these people to take the opportunity to leave.

The thought process at Western back then also serves the same logic, and that is Western's management, as it came together and as it formed the organization, as it developed its corporate philosophy, is, "We are here by direction of Congress, pursuant to the influence of the rate payers, to be aggressive, to be innovative, to be more open to being more of the customers' advocate in the development of Federal power rates."

Let's see, did I hit all three prongs doing that?

Storey: Yeah, I think so. Would you tell me, from your perspective, *how* the responsibility was split between Western and Reclamation?

Reclamation and Western Executed the "Master Agreement"

Boyce: Actually, it was done fairly orderly, and I attribute that to the leadership of both organizations, those that went, those that stayed. There was a very detailed document that was executed by the commissioner of Reclamation and the administrator of Western, and provided to the Congress as demonstration of the accomplishment of

the DOE Organization Act, [35]certainly from the power perspective. This document is called the "master agreement." Most Reclamation and, quite frankly, most Western employees, to this day, don't even know it exists. It lays out in pretty minute detail the facilities, the transmission lines, substation equipment, that were to transfer to Western's ownership and control, that which was to remain with Reclamation. It talked in terms of joint agency relationships for switching, for operating, for power deliveries, for protection of the generating equipment, for rate-setting, on and on and on.

This document's about an inch and a half thick, I think, with a number of exhibits. It identified in terms of property transfers, which literally gave latitude, longitude, if it was a physical site, right-of-ways of transmission lines, switchyard locations, etcetera A very detailed document as to *how* the organizations would divide up the assets and how the organizations would each take responsibility for the administration of generation of power and the sale of power, the *transmission* of power, and the administration of the assets, quite frankly.

So it was done in what I have always felt was a very orderly process, very well-thought-out process. The unfortunate part of it is is that it is not commonly known to employees of both Western and Reclamation that it even exists and what it says. Even if they know it exists, most of them haven't even read it. That, in my opinion, is one of the reasons why we *still* have to this day some conflicts between the two agencies. Again, it's back to that turf battle. A lot of our conflicts are more territorial conflicts as to who's responsible to do this or that thing. In many cases, if one would just take the time to read the master agreement, then one would see that that was thought about, it was discussed, it was negotiated, and it was contracted for.

A lot of the *resentments* that have occurred, still occur, are lack of understanding and, in some cases, may be a lack of interpretation or a disagreement of interpretation of what that master agreement does or does not say. That's typical of any document that's ever been written, and that's why we have courts and we have lawyers is that it's very difficult to set down on paper what the real intent was, even twenty years ago, by those people who were most knowledgeable of the facilities and the operations at the time.

Certainly the leadership of Reclamation and the leadership of Reclamation that went on to become the leadership of Western, these were people that had infinitely good understanding of the power business, and they wrote what appeared to be a very *detailed* document. But unfortunately, it's never detailed enough. That's no indictment on them. That's very typical of any contract you pick up to this day. You'll always find some instance where the contract either doesn't discuss it at all, or its discussion is so vague, it's subject to interpretation. I think that interpretation, or lack of discussion, of the master agreement has created, or certainly has precipitated, a lot of the resentment that still exists today.

Storey: What generally was the split of responsibility?

35. The Department of Energy Organization Act of August 4, 1977, P.L. 95-91, 91 Stat. 565.

Boyce: The responsibility split was fairly concise, and that was all facilities, with very few exceptions, and they are identified exceptions, that were associated with the transmission of Reclamation power went to Western. That means substations, switchyards, transmission lines, and the support facilities for all of those.

". . . as the power comes off the generator and it goes to a transformer which steps the power up from its generation voltage to its transmission voltage, there's an input side from the generator, there's an output side to the transmission line. Well, on the output side, which is an electrical bushing on the transformer, that's commonly referred to as the high side of the transformer, and it's at t*hat point* that Reclamation's responsibility *terminates* and Western's responsibility *begins*. . . ."

It's generally, as a rule of thumb, deemed to be the demarcation point of where Reclamation's generation responsibility terminates and Western's responsibility as transmission agent begins is commonly called the high side of the transformer, the high side bushing of the transformer at the generation source. In other words, as the power comes off the generator and it goes to a transformer which steps the power up from its generation voltage to its transmission voltage, there's an input side from the generator, there's an output side to the transmission line. Well, on the output side, which is an electrical bushing on the transformer, that's commonly referred to as the high side of the transformer, and it's at t*hat point* that Reclamation's responsibility *terminates* and Western's responsibility *begins*.

Exceptions to the General Rule

There are always exceptions, because we have some transmission facilities that are physically located within the *generating* plant. Parker Dam is a case in point. We have some, I think, even at Davis Dam. We have transmission facilities literally on the *roof* of a powerplant. Here there have been individual agreements between those entities directly responsible, regional offices. They have reached an agreement as to whether Reclamation's employees will do certain activities or whether it has to be Western employees doing it someplace.

A lot of this has been developed because of the expediency of who is physically there. If it's a situation where Reclamation employees are there, and it's a transmission function like a switching change, and the switchman for Western is maybe 300 miles away, it is not economically or really feasible to send a switchman from 300 miles away to that facility, especially when you're going to have a powerplant operator that can go up and equally do the same job. So these things have been identified over time, and they've been specifically spelled out and agreements have been reached, and it seems to work very well now.

On the Yuma Project Reclamation Has Low Voltage Lines to Supply Electricity to the Project, but Western Maintains the Lines

There are some instances–Yuma comes to mind; I think there's others in the upper regions–that because of our obligation to provide project power to project

facilities that are not located immediately at the powerplant, there may be low-voltage transmission lines from the powerplant to that facility. Typically, those facilities are maintained by Western, but they remain with Reclamation. Now, the reason they're maintained by Western is because they have transmission-type service people. Reclamation doesn't. And so, in effect, we've contracted to Western to take care of those facilities.

Reclamation Still Sets Rates for Power Used on Projects

The other side of that coin is Reclamation sets the power rates for project use power flowing over that. That's the *one sole* exception that I can think of where Reclamation still is in the rate-setting business, but it only sets rates for *project power* being used for project purposes. So there is a relationship where Reclamation still has to do some rate-setting, but it's not for the *sale* of that power which is in excess for project purposes. I think that's pretty much the thumbnail sketch of how facilities and properties separated between Reclamation and Western.

Storey: Yeah. You mentioned that Western became the rate-setter, where Reclamation had been the rate-setter before.

Boyce: That's true.

Storey: Reclamation was setting rates based on O&M and various–

Boyce: Same exact criteria we discussed earlier.

Storey: Various things that *they needed* in order to *pay their* costs and so on.

Boyce: Correct.

Rate Setting Issues Between Reclamation and Western

Storey: The reason I'm asking this question is because it seems to me that if you give the rate-setting to Western, yet you have to meet costs at Reclamation, there's a potential for tension there and disagreement.

Boyce: Yes, indeed. That's true. Not only is there potential, there is, in fact, disagreement. The master document calls for a joint Reclamation-Western repayment team, and early on there was, in fact, a joint Reclamation repayment team. That has, over the years, gone away. In some projects, some regions, there's still an interplay. I know in LC Region we still have an individual who works with the Western repayment people to make sure that all of Reclamation's costs are properly represented in the rate-setting process. Other regions, I know, Reclamation has basically taken the attitude, "That's Western's responsibility and I don't worry about it."

My perspective, having sat on both sides of the table now, having been a member of the original group of that joint agency repayment team, I feel it's foolish

for Reclamation entities to take that philosophy of, "We don't need to worry about it."

END SIDE 1, TAPE 2. October 10, 1997.
BEGIN SIDE 2, TAPE 2. October 10, 1997.

". . . that's exactly why I now have the position I have, is to help to coordinate between Western and Reclamation and to reestablish that relationship in a more positive venue rather than in such a negative venue . . ."

Boyce: Quite frankly, I think that's exactly why I now have the position I have, is to help to coordinate between Western and Reclamation and to reestablish that relationship in a more positive venue rather than in such a negative venue, to bring back together a mechanism–and I wish I knew what that mechanism is, and I'm sure over time it will evolve–that will give Reclamation the assurance that all of the costs that have to be recovered by power rates are, indeed, being recovered by power rates, and that the transfer of information between Reclamation and Western is done in a very orderly and compatible way so that after-the-fact criticism, which I hear far too much of today, of Western's rate determinations either being deficit of all of Reclamation's cost or not representing Reclamation's cost in a correct manner, that those criticisms will go away.

There is–and again this is attributed to the fact that we've had major turnover of personnel in the last twenty years since Western was formed, not only on Reclamation's side but on Western's side–but there is, in my opinion, in my experience in talking with management within Reclamation today, there is *not* the *in-depth* understanding of the relationship of power and rate-setting and Western that there used to be when we had, in fact, Western employees, Western management, that had just come from the Reclamation perspective. Those people are all gone, for the most part. That knowledge and understanding of Reclamation's business in Western is, for the most part, all gone, because we don't have that many–maybe, hardly any–former Reclamation employees in Western. And so the employees in Western are basically Western employees from the day they entered Federal service until today.

I'm one of very few, I know, that has worked in both agencies and has an understanding of the power business on both sides, and that's why I attribute my being in the position I'm now in is because I am, in effect, to be that liaison, to *help be* that conveyance to educate *both* agencies as to why it's important that we do business in a certain manner, so that we represent *all* of the costs that Congress obligated the two agencies to administer and to cope with for a single project.

Recall I said in an earlier interview that one of my goals was for Reclamation and Western to represent Parker-Davis Project as a single project with a single financial statement, rather than two agencies individually representing what they think to be their portion of the project, and there is always going to be an overlap. So the overlap is the area that has the greatest opportunity for disagreement. Hopefully, in the next few years I can bring that to fruition. We've got the commitment of both

agencies to work together to do that. Time will tell whether or not we accomplish it. But certainly we've got to get an educational process on both sides.

Reclamation is equally guilty as Western is. We've got to educate our management. We've got to educate our staff of this relationship. That, too, along with the processing of the old guards leaving both agency, I think, will be the key to eliminating this turf-guarding, is that we have to have a clear understanding of each other's *role*. We are, if you might say, the bastard children of Congress here, because they did, in my opinion, a very stupid thing to split the two agencies apart. I understand *why* they did it, but I think the end result has created more problems than it's solved. Quite frankly, I think it's very clearly demonstrated, dollars and cents, that it's cost the rate payers more dollars. But that's my opinion of something the Congress did that was somewhat ill-conceived.

My problem is now to work within that criteria and to try to certainly eliminate as much of the duplicative cost and to help heal those wounds between the two agencies, and get at least before the Congress the projects represented as the projects that were originally authorized.

Storey: In the area that you worked in–I don't know what that region's name is in Western, but in the Lower Colorado Region.

Western Markets Reclamation and Corps of Engineers Power

Boyce: It was Boulder City Area Office at that time. It's now the Desert Southwest Region for Western.

Storey: Did Western have any other sources of electricity than Reclamation?

Boyce: No.

Storey: Is that true Western-wide?

Boyce: Western has the authority under the DOE Act to purchase power, but only to purchase power for the satisfaction of existing contracts. Western is not in the business to go out and purchase power just to independently sell it. It's not a marketeer, a general marketeer, of power. Western's obligations, Western's authority was to be the marketing agent for Reclamation's generated power.

Working with Western, Corps of Engineers, and BPA

Storey: What about the [U.S.] Corps of Engineers?

Boyce: Same with Corps of Engineers. Corps of Engineers is the generator of power just like Reclamation. They, in turn, hand their power off either to BPA or to Western, in some cases, or other power marketing administrations in the Southeast, for the marketing of power, their power. I think the law's fairly explicit on that.

Storey: So let's see if I'm understanding this. In effect, for a Reclamation project where there are repayment issues and where there are O&M issues and all of those financial issues, Western is setting rates for Reclamation projects–

Boyce: Costs.

Storey: To pay all of that off.

Boyce: Right.

Storey: To pay for all of that, *plus* to pay for their own expenses?

Boyce: Correct.

Storey: And they would do a similar thing for the Corps and so on?

Boyce: Yes. Absolutely. Again, at the lowest possible rates consistent with sound business principles, not to make a profit.

Storey: So there was a lot of interaction between you at Western and counterparts over at Reclamation, I presume.

Boyce: Early on, there was a tremendous amount of interaction. Over the years it's diminished. I would like to think that somewhere in the future there's going to be more, probably not as much as initially, of that interaction. Our new partnership agreements with Western, I believe, is going to help facilitate that, and at least *I'm* hopeful that it's going to facilitate a more congenial working relationship between the two agencies. But I think it's also imperative to reach that point in order for both agencies to have assurance that they can go forward to the Congress and say without a doubt in their mind that they are doing what the Congress told them to do.

I would hate to be in the commissioner's shoes. I would hate to be in the administrator of Western's shoes, and to go in there and just absolutely, with no doubt in my mind, say to the committees of Congress and to the Congress as a whole, "We are doing our job exactly like you told us to do." I would not want to have to do that today, if I were in their shoes. I'm not confident, at least from my perspective, that we are. I think we're close, but I don't think we're quite there yet. I don't think I could say that and be *absolutely* 100 percent sure that we are doing exactly what the Congress told us to do.

Storey: But that's what you're working on?

Boyce: That's my role in life, is to bring that a little closer and hopefully to bring closure on it so that the commissioner and the administrator of Western can go before the Congress, as they are required to do from time to time, and just stand up and say, "Yes, sir, we're doing our job exactly like you told us to do it."

Storey: Are you doing the same thing with the Bonneville Power Administration?

Boyce: That will be another phase of *my* responsibility, along with coordinating with the Corps of Engineers. We have a very entangled relationship here, because the Corps does what *we* do: they generate power. The Corps is responsible to the Department of the Army, which complicates the picture even more.

Bonneville Power Administration has a multiple role. They not only have a wholesale power responsibility, they have a retail power responsibility. Bonneville even has other obligations on them as far as the northwest resources up there that conceivably Reclamation doesn't have on it. So where our boundaries of responsibility overlap, we certainly need to get those areas clearly defined, clearly responded to, and put the respective administrators of each of the agencies into the position that they have the assurance that they are satisfying the obligations that each of the agencies have to do to the Congress. With our *predominate* partner being *Western*, that's the first hurdle I've got to resolve. Once we resolve that, then we'll take and start working and probably, truth be known, we'll probably work somewhat interactively with the Corps and Bonneville as we're working through with Western, just as a matter of expediency. But we need to do that.

Storey: Good. Well, we're getting close to our time, and I know you have a meeting. Next time I'd like to start on your career at Western. I'd like to ask you now whether you're willing for the information on these tapes and in the resulting transcripts to be used by researchers.

Boyce: You bet.

Storey: Good. Thank you.

END SIDE 2, TAPE 2. OCTOBER 10, 1997.
BEGIN SIDE 1, TAPE 1. DECEMBER 15, 1997.

Storey: This is Brit Allan Storey of the Bureau of Reclamation, interviewing Harvey Walter Boyce on December the 15th, 1997, at about one o'clock in the afternoon. This is tape one.

Moving over to Western

I think we had made it to the point where you went over to Western. Could you tell me about how that transition took place? Did you actually have to apply for a job? Did they come to you and say, "Come with us"? How did this work?

Boyce: Well, let's see. I guess the best way is with the passage of the 1977 Department of Energy Organization Act, *numerous* individuals throughout Reclamation, as I understand, were basically polled, or an inquiry was made as to those folks that might be interested in going to the Western organization. I know that I expressed an interest, and Dale Imlay from this office, also from the regional office, did also.

Dale was under consideration to be Western's financial officer, first financial officer. I believe–I want to say ~~Wes~~ [Dave] Taylor, but I don't know if ~~Wes~~ [Dave]

is the right name. But Taylor was one of the original ones. I think he came out of, what was it, Region Six, the one that was in Denver. What was the region that closed there? Region Seven? Region Six? Whatever. It was located–

Storey: I think it was Seven, maybe. I think Billings is Six.

Boyce: Yeah. Okay. Well, he was the financial officer in that region, and I think he actually is the one that was selected. But Dale, I remember, worked part time. He worked like a half a day for Reclamation, a half a day for Western, early on, and his function initially was as the admin officer for Western.

I went over. Another fellow by the name of Bill Lewellyn [phonetic] was in the finance shop also, expressed an interest to go. I think he actually ended up going to DOE [Department of Energy], but not–I don't know if he actually went to the Boulder City Area Office of Western initially. Maybe he did, now that I think about it. Then he went on to the nuclear facility up in Idaho.

Storey: INEL.[36] Nuclear Energy Lab.

Boyce: Right.

Storey: I've forgotten what "I" stands for. [Laughter]

Boyce: I don't know. It's not Pocatello. Where's that at? Idaho Falls?

Storey: Sort of north of Pocatello, up in that area.

Bob Olson Moved over to Western as Area Manager in Boulder City

Boyce: Somewhere up in there, yes. He went with them eventually. And another accountant that was in this office went there also, a fellow by the name of Wayne Brewer, but he did not go under the initial organization of DOE. I think from the finance office in this region, I was the only real *permanent* transfer. Now, there were people out of the Power Division. Bob Olson, for example, was the one that was initially earmarked to be the Boulder City Area Office Manager. Another fellow by the name of Bob Tinhouse [phonetic] was in the contracts section of 600, the power group here. He came over. Marlene Moody came over to Western. And Dale Ensminger came over to Western.

Then there was some of the engineering staff out of power group. Don Esgar is one. He's since retired, has gone to Arizona Power Authority. A fellow by the name of–his last name was Martin. He left the government, actually, government service, even before the Western office went into its permanent facilities down at Mead substation here in Boulder City. He went with an international engineering firm and left. And there was another engineer that I can't recall right off. But that seemed to be the sampling of people.

36. Idaho National Laboratory, Department of Energy.

Oh, there were some substation people that were assigned out of the Parker-Davis Project Office that were located at the Mead sub, and I think some of those people just stayed. They actually lived here, even though they were assigned to that office out at Parker-Davis. So they transitioned over to the Boulder City Area Office and remained here.

So, anyway, I guess the answer is I basically said, yes, I would be interested, and I was part of the master transfer list of Bureau of Reclamation employees that came over. I came over as an accountant, because that's what I left Reclamation as. I basically was going to stay on as an accountant, and then there seemed to be a great deal of uncertainty as the Western offices were formulated and the positions solidified, whether or not they actually were going to keep a full-time accountant in Boulder City or whether it was going to move to Denver. They didn't seem to know what the grade levels were going to be. A lot of confusion.

Marlene Moody Became Assistant Area Manager for Power and Marketing

About that time, Marlene Moody, who assumed the position of the assistant area manager for power ~~and~~ marketing, was advertising for a public utilities specialist. I had worked with Marlene as an accountant with Reclamation on various project repayment issues before, particularly on Parker-Davis.

"I ultimately took over as the supervisor public utilities specialist of the Marketing and Rates Division for the Boulder City Area Office. . . ."

She had advertised a public utilities specialist grade 9/11/12. At that time, I was their GS-9 Accountant, and *really* did not see that there was much of a promotional future. So I put an application in to switch to public utilities, and was successful in getting that job. Came across as a lateral and then I got my 11, I guess, six, eight, nine months later. I got my 12 about a year and a half after that. And I think we talked about this earlier. I ultimately took over as the supervisor public utilities specialist of the Marketing and Rates Division for the Boulder City Area Office.

So I guess I quasi-applied. I didn't apply in the same sense that you do for most jobs. It was really just an expression of interest, and those that indicated that they were willing to come over, they just did a kind of a class-action transfer, and that's how I came over along with a whole lot of other folks. Dale Imlay never did make the full transition. He was offered to take over the finance officer's job for this region in replacement of–and I remember that guy's name, finally. George Johnson was the finance officer. He'd come from the Denver office. I think he'd actually come out of the Washington office via Denver to Boulder City. He was basically here kind of on his twilight cruise, you might say, before he retired. So he retired out of this office here.

Storey: The Western office was down where the Mead substation is now?

Western's Offices at Marshall Plaza

Boyce: Ultimately it was. Initially, when the office was put together and when I joined Western's staff here in Boulder City, it was out on the highway between Boulder City and Las Vegas, out in what's called the Marshall Plaza, which is on the western edge of town. They basically leased some office space in there. The reason for that is because the Mead substation complex, as we know it today, was not the complex that it is [now]. I mean, basically it had a control room and, I guess you would call it, a combination wire house and a high-bay garage for the boom truck that they kept on site here to do switchyard work at Mead as well as over at Basic [Magnesium Inc.]–the BMI substations. So that truck was resident in that building, and then there was some warehousing and some communication equipment areas in there.

Remodeling Facilities at the Mead Substation

But what occurred, of course, they went through the usual GSA process to see about do they lease office space in Las Vegas, do they find some space in Henderson, or what, or do you build buildings. They played that entire exercise out, and I guess it boiled down to the fact that Mead complex belonged *now*, according to the DOE Act, was property of Western's now, and it was easier to literally remodel the warehouse high-bay facilities and expand it and make offices. That's effectively what they did, is they basically just extended essentially two walls, the west and the south wall of that warehouse, and came up with the office complex.

Actually, that was the first remodeling job of that warehouse, and then they did one other additional remodeling and actually just about doubled the square footage of the building by extending to the east of the warehouse. They did it by notching the building on the northeast corner so that they could still have access to the high-bay. But they basically extended the building actually further south and then out to the east and expanded it to the building that we now know it to be today.

Storey: When they moved out–Marshall Plaza, I believe you said?

Boyce: Yes.

Storey: When you all moved out there, did they hire other people from the outside, or was the whole staff Reclamation?

Evolution of Staffing at Western

Boyce: Initially it was *all* Reclamation, and there was, gee, I would guess maybe about twenty. Nineteen or twenty is the number that rings in my mind. That was the entire office staff. Then gradually, as positions were identified and position descriptions were written, etcetera, and go through the entire personnel process of identifying positions and filling them, additional people were hired. Some of them were literally hired off the street, so to speak. Others were transferees from other agencies. I think actually we even got some further transfers from the regional office here. It just seemed to be a wide-spectrum recruitment process as they staffed the agency up.

Marshall Plaza Grew to Meet Western's Needs Before the Remodeling and Move to Mead Substation

As the agency *grew* out there, that office grew, the owner of that complex, Marshall Plaza, Elmer Marshall, literally worked with us to *expand* his plaza and actually added storefront. It would be running east and west. It would be on the north side of the highway there. He actually added additional buildings to the west and to the east of the building that we went into, and we shared the building with a radio station, and seems to me there was a nursery on the very end and a couple of other small private businesses that were in there. But the radio station was there. We kind of surrounded around the radio station, actually.

But DOE being out there was very profitable, I think, for Mr. Marshall. He was able to expand that building, and after we terminated our lease there, which, I guess, was in about 1979-, 1980ish time frame that we physically got moved out of the Marshall Plaza. So, '78, '79. Yeah, about either late '79, early eighties, we actually moved out of that plaza down to the Mead complex, by time all the remodeling was done at Mead. So we had the office space. That plaza is full of shops, so I guess the owner didn't get hurt at all. Financially it worked out pretty well for him.

What a Public Utilities Specialist Does

Storey: What does a public utilities specialist do for Western?

Boyce: Public utilities specialist, it's not unique to Western. We have them in Reclamation and I am one here. Public utilities specialist is typically an individual that's involved in–it really doesn't matter whether it be water or power, quite frankly; it's utilities. Typically they used them in the power arena more than the water arena, but we do have water contract specialists that are, in effect, public utilities specialists, may even be graded as public utilities specialists.

"There is *no* formal educational process that you can go through that would qualify you to be a public utilities specialist. Unlike an electrical engineer or a civil engineer or an accountant or a lawyer . . ."

We often have called a public utilities specialist the ultimate jack-of-all-trade and master of none. There is *no* formal educational process that you can go through that would qualify you to be a public utilities specialist. Unlike an electrical engineer or a civil engineer or an accountant or a lawyer or something like that, you can't go to a university and find a public utility specialist curriculum.

Public utilities specialist is made up of any number of disciplines–engineers, civil, electrical, hydraulic, it doesn't really matter. I believe we've had psychologists in there. We've had political scientists in there. I am, essentially, an accountant by trade, so to speak, so you've had financial people in there, budget-type people in there. And, actually, you can have *no* discipline. You don't even have to have a college degree to be a public utilities specialist. That's probably one of the very *few*

quasi-professional occupational codes in the government, and it's not really a *professional* occupational code like accountant or engineer, because you don't have to have that formal education to get there. But it is one of the few that an individual can literally get to a Grade 12 or even to a 13, probably not very often today, but early on you could without a formal degree. A lot of it was on the basis of just common experience and knowledge. If a person was good at writing contracts, they knew the power system, could negotiate well, really, the sky was the limit.

". . . what I was doing was marketing and writing repayment efforts, and essentially started off as being Western's Boulder City Area Office's *only* repayment expert . . . I was essentially a shop of one. . . ."

In my particular instance, regardless of whether I had a degree or not, principally what I was doing was marketing and writing repayment efforts, and essentially started off as being Western's Boulder City Area Office's *only* repayment expert, and I was essentially a division of one or two. I think there was a public utilities technician or a clerk that gave me some assistance, but also assisted others in the power marketing arena. So I was essentially a shop of one.

Marlene Moody Had Two Branches–Contracts and Power Repayment-Marketing-Statistics

The contract writers such as Dale Ensminger, Bob Tinhouse, those people, they were the other branch of a two-branch organization that Marlene Moody was the head of. She had contracts on one side and she had power repayment, marketing, statistics on the other.

Marlene Moody's Career

I initially was a shop of one when we first started. As that progressed, Marlene went to Washington, as I recall, worked for the secretary, went into the secretary's office, I believe, of DOE. I don't remember what her position was. And then through downsizing or a RIF [Reduction in Force] or something, she ended up actually leaving Western or leaving Department of Energy for a while and ultimately came back to work in the *Golden* office of Western as the assistant administrator for power marketing. So, kind of a circuitous route, but she ended up there, and that's where she retired from.

"By the time I left Western in 1990, I had in my division, I believe, six individuals that were working for me in the marketing and rates group. . . ."

By the time I left Western in 1990, I had in my division, I believe, six individuals that were working for me in the marketing and rates group. I had one electrical engineer. At one time, I had an accountant. Actually, two accountants, I should say. I had some ladies that had been file clerks, clerk typists that had progressed over the years and had worked their way up through being a public utilities technician, to public utilities assistant, and finally actually a public utilities *specialist.*

Ann Garner, who's the head of the power and O&M group in this region now, used to work for me as a public utilities specialist. LeGrand Neilson's wife came to work as the secretary to the power marketing assistant area manager, and then became a public utilities technician, I believe, or an assistant. She progressed through until she was a GS-11, 9 or 11. I guess a 9, public utilities specialist. ~~Transferred when the office closed and went to Phoenix when the Western office went to Phoenix.~~ Billie Neilson went to the dam and actually worked as a public utilities specialist in the operations office at the dam [Hoover]. From there she transferred to the Department of Energy's office in Las Vegas. I actually think she's working over in the personnel arena now in their training group that does various training functions.

It's been kind of a small family, at least in the Boulder City office. Denny Carlin, who's an electrical engineer, came out of the Billings office of Western, transferred down here to work for me, and now is in the power and O&M group as [an] electrical engineer. So it's been kind of a fairly tight-knit group of people. Most of the public utilities specialists that were around not only Reclamation, but Western at the time, we all knew each other throughout the entire organization.

For a Time Western's Public Utilities Specialists Met Quarterly, Usually in Golden, and Included Representatives from Reclamation, the Corps of Engineers, and Other Power Administrations

We had an ad hoc group of representatives from each of the regional Western area offices. We met generally quarterly, usually in Golden, but at times we would meet in Billings or we'd meet in Sacramento or we'd meet in Boulder City or in Salt Lake, kind of pass that assignment around. It was probably one of the more effective team efforts. Even though it wasn't fashionable to have a *team* in that age, we were just an ad hoc group, but it was probably one of the more *effective* team efforts as far as developing the repayment policy for Western, not only the development of it, but the discussion of various common interests that affected all of Western's power marketing. We would get together and go over those things.

Our ad hoc group also included representation from Reclamation's Denver office. We had representation from the Corps of Engineers. We had representation at times from the Alaska Power Administration, from Bonneville Power Administration, and Southwest Power Administration, somewhat like the power management laboratory that Mike Roluti headed up. It's kind of a synonymous-type organization.

"The ad hoc group for Western, unfortunately, just seemed to die by the way. . . ."

The ad hoc group for Western, unfortunately, just seemed to die by the way. I don't know what was the cause of that. I don't know whether it was the loss of the leadership in the Golden office as people retired and went on to other things, but it has literally disseminated to nothing. As Western has gone through their transformation process, that headquartering effort of a power marketing group has been disseminated out to all of their now regional offices. So there really isn't a power marketing headquarters office in Golden any longer like there used to be. That

policy group is basically scattered out to all of the regional offices. I don't know whether that's good or bad. I guess time will tell.

"We're trying to form a partnership of the power and financial group that will have a nucleus out of the Golden-Denver office, but will have representation out of each of the regional offices, both from Western and Reclamation. . . ."

We hope, through some efforts that Mike Roluti is basically spearheading and I'm intricately involved with, that we're going to be able to form a partnership between the Western corporate office in Golden and Reclamation's office in Denver with the financial CEOs of both organizations and also the power group, whatever they're now called in Western, in the Golden office would be Mike Roluti's counterpart. We're trying to form a partnership of the power and financial group that will have a nucleus out of the Golden-Denver office, but will have representation out of each of the regional offices, both from Western and Reclamation. Hopefully, that will be the successor organization to the old ad hoc group.

There seems to be a need. There seems to be a consensus by both agencies that there needs to be that type of partnership put back together again and also even to bring the Corps and to bring Bonneville Power into that partnership, mainly because we have some common interests, because we do do business with each other, and we need to make sure that as we perform those business functions, that there's a common understanding, that there's a common transfer of data, that we all have a common understanding what that data represents.

So that has been initiated. It's not really far along yet. There are draft charters for this team or this partnering group being circulated for comment, and hopefully after the first of the year '98, early '98, we'll start to *solidify* some of those and start to really again formulate some *strong* Reclamation, Reclamation-DOE policy that, inasmuch as not only the Corps of Engineers and Reclamation rely on the power marketing administration, which Western is one, BPA is one, and we all have a common bond in our transactions, we need to have that strong coalition to successfully and efficiently generate our power, sell our power for the lowest cost possible, and to comply with the Reclamation laws. That's a major undertaking, and I hope we're successful in getting that accomplished in early 1998.

END SIDE 1, TAPE 1. DECEMBER 15, 1997.
BEGIN SIDE 2, TAPE 1. DECEMBER 15, 1997.

Storey: As a public utilities specialist, did you have a lot of contact over at Reclamation?

Worked with Reclamation's Regional Office in Boulder City

Boyce: Yes, I did, mainly in the region. I spent a great deal of time with not only the financial office here in the region, but also the power group. That was a lot of the result of not only our former allegiances and alliances with Reclamation and the fact that so much of the *data* and information that was being transferred basically had its roots here in Reclamation. So there was a great deal of data-gathering, information

research, done in Reclamation's offices. There was also a great deal of conferring with Reclamation's staff to make sure that we kept the continuity of what had been a Reclamation function, that that continuity was clean and orderly and continued within Western, so that we maintained the stability with the various power contractors.

So I spent a great deal of time in Reclamation's offices. Actually, that's where I met Mike Roluti. He was working here in the power group as a very young graduate electrical engineer, I guess, after he had left Boeing Aircraft. He worked in an office, or shared an office, with a fellow by the name of Jim Chetlet [phonetic], who I believe is still working on the Federal Energy Regulatory Commission's staff in the rate area. Jim Chetlet was kind of my mentor in learning how Reclamation, at that time, did power repayment studies. So I spent a great deal of time here in the regional office with Jim and being in the same office with Mike and became very well acquainted with him.

Did Most of the Accounting to Set up the New Bookkeeping System at Western

I spent a lot of time also over in the finance office, initially, as an accountant. Then until such time as I literally made the transfer from accounting to public utilities specialist, my function as Western's accountant in the Boulder City Area Office was still performed in Reclamation's financial office. Reclamation, for all intent and purposes, for about, I believe, the first couple of years of Western's life, certainly the first year, essentially did most of the accounting, because it was going to take time to establish (a) the personnel; and (b) to establish all of their accounts, make all the transfers of the proper amounts of money from Reclamation to the Western accounts and all of that stuff that has to go on in basically setting up an entire new bookkeeping system.

Even though initially Western basically just fundamentally *copied* Reclamation's accounting system, which was probably the wisest thing to do, it would make it the easiest way, I guess, to make that transfer, it was just easier to do that transition with the accountants staying essentially in the same chairs that they were.

So my initial tenure with Western, literally I didn't move my position at all. I sat in the same chair, at the same desk in finance in the region. It's just my check was coming out of the Department of Energy accounts instead of Reclamation accounts. So I did a lot of work, I guess, kind of both sides of the fence. I continued to do a lot of the work that I had assignments initially with Reclamation, as well as I was doing work that I was now doing along with the power accounting for Western.

Then as I transited over to being a public utilities specialist, one of the other accountants in the region picked up the–actually, he even hired on, as a matter of fact, with Western. He transferred to Western as an accountant and picked up the power billing and a lot of the accounting work, along with they had a couple of other individuals in the Budget and Finance Office, now out at Marshall Plaza. Tom Carlin [phonetic], who is one of the key budget people in Western's headquarters office now, was essentially either the first or second budget officer the Boulder City Area

Office had. So as I moved over to public utilities, then is when I actually made my transition out to the Marshall Plaza, but my first tenure with Western literally was in the same building at the same desk.

Storey: What kinds of things would you meet with Reclamation about?

Working with Reclamation While at Western

Boyce: Basically it was verifying data. Especially as I developed power repayment studies, I had to verify power statistics, generation, losses, amounts that we billed to the power customers, the amounts of dollars received. Then we also had to validate information with the trust and reimbursable-type contracts where the government was doing work either for another government agency like Bureau of Indian Affairs or the Park Service or Bureau of Land Management.

Validating Contracts and the Work under Them

We would validate the contractual side of the finance transactions there to make sure that the work was being performed, that the proper amounts were being billed, proper transfers of funds were occurring. Then if we did work for any of our *customers*, we did that basically on a reimbursable basis, where the customer would enter into a contract with us to, say, build a substation. They would advance money to Western. It used to be Reclamation, then Western. We would develop the design specifications, do the architecture, do the land acquisition, environmental work. All of this had to be validated, contracted for, verified that the work got done, verified that the funds got transferred, verified that the right accounting was done, issue bills as necessary, collect the funds.

So, from a contractual administration perspective, that was where we spent probably the bulk of our work as a Public Utilities Specialist, not only from looking at it as contract compliance, but also from the financial compliance of the contract. Was it being done accordingly? Was the work that *was* done being properly expensed, properly recorded so that we could properly bill it and account for it? That type of thing.

Power Billing and Repayment Studies

The power billing side was, again, validating if we sold so many kilowatt hours over a year at such and such a rate, did we get the right amount of dollars? Was the dollar properly put in the right account? Did it match up with the FERC classification of Uniform System of Accounts? Did we have it properly captured in the repayment study? Did we capture the expenses associated with the project? In a repayment study, did expenses balance the revenues? Is there a shortfall? Is there a long over-collection?

"All of that stuff initially had to be very closely coordinated with Western and Reclamation staff, because we were essentially doing the same work that folks that didn't leave Reclamation had been doing. It was now Western's

responsibility. There was a tremendous learning curve. There was a tremendous transfer of documentation . . . Tremendous educational process and really a coordination process that created probably a great deal of problems at times. . . ."

All of that stuff initially had to be very closely coordinated with Western and Reclamation staff, because we were essentially doing the same work that folks that didn't leave Reclamation had been doing. It was now Western's responsibility. There was a tremendous learning curve. There was a tremendous transfer of documentation that had to go back and forth, and there was a learning curve on both agencies' part as what documents did Reclamation need to retain, what documents did Reclamation no longer need, what documents did Western need to start providing to Reclamation, vice versa. Tremendous educational process and really a coordination process that created probably a great deal of problems at times. I think it, quite frankly, created some ill feelings amongst individuals, and I guess that's probably just common human nature to have that occur as information had to shift from one agency to the other.

". . . there's been nearly twenty years . . . we need to *bring* those agencies back together again, because we have too much in common. We have to literally protect each other, help each other, to guarantee, shall we say, the survivability in this current age of deregulation and the era of those who would have Federal assets privatized. . . ."

That's probably why, getting back to putting this coalition, this new partnership, back together, we need now that there's been nearly twenty years, over twenty years, of time go by, a lot of those wounds are healed, we seem to believe, anyway, and while there was a divergence of the two agencies and the individuals, we need to *bring* those agencies back together again, because we have too much in common. We have to literally protect each other, help each other, to guarantee, shall we say, the survivability in this current age of deregulation and the era of those who would have Federal assets privatized. It's now in the Federal agencies' best interest to, shall we say, combine forces and join together in protecting our survivability.

Storey: You mentioned FERC and a Uniform System of Accounts, I believe.

Boyce: Right.

Storey: What's that about, and why would FERC be telling us how to do our accounting?

Boyce: FERC is the current agency that–

Storey: Formerly was the Federal Power Commission, I believe.

Boyce: Federal Power Commission.

Storey: F-P-C.

FERC Has the Uniform System of Accounts So That When Power Companies Talk They Are Using the Same Language

Boyce: Our dams, Hoover, for example, Parker-Davis, are essentially permitted, if you will, licensed, in a strange sense, under the old F-P-C Act, and now under the FERC orders. The Uniform System of Accounts that used to be the Federal Power Commission's, now FERC, basically is an industry-wide accounting structure so that when industry, the various power companies talk to each other, their accounting data is in the same format and it's classified the same way, so that if we were talking about hydroelectric turbine runners at Boulder Canyon Project, that means the same thing at Niagara Falls Power Company. It's just a common set of accounts, and everybody that is in the utility business in the United States, I believe, falls under the F-E-R-C now for permitting and licensing, and part of the permitting and licensing process is the understanding that you will abide by that Uniform System of Accounts.

Reclamation uses it. Western uses it. It doesn't cleanly fit as well as it does for the other entities in the utility business and the electric utility business, but we do abide by it as best we can. It's helpful when we're doing benchmarking with other non-Federal entities, because if we go in and look at prime movers or if we look at overhead conductors and devices and we look at Western's accounts or we look at our own accounts or we look at Southern California Edison's accounts, we're all talking the same language. So that's why we're involved, and Boulder Canyon Project was authorized in concert with the Federal Power Commission Act.

Most Federal entities now, their authority, their legal authority, ties them either back to the old Federal Power Act or now to the DOE Act. If you're tied either way, you're tied to F-E-R-C. So it's just part of our legislative authority.

Storey: So it was passed in '28?

Boyce: I think.

Storey: Yeah. '28.

Boyce: I think it was. It was just, I believe, before the Boulder Canyon Project Act, as I recall, and I don't remember the exact month and day. But I believe it was either late '27 or in 1928. I think it was '28. I think it was early '28, as my memory serves me, but just not specific.

Storey: Tell me about your promotion. Was the promotion from public utilities specialist to the supervisor of marketing and rates?

Boyce: Right.

Storey: Then was there a further promotion to division chief?

Promoted to Supervisor, Marketing and Rates

Boyce: No. When I became the supervisor for marketing and rates, in effect, I was a division chief at that time, and I reported to the assistant area manager for power marketing, who reported directly to the area manager. So I was, I guess, what you would call third-level management at that juncture, or first-level management, depending which way you're looking, from top to bottom or bottom to top. So I actually was a supervisor in that role and had personnel responsibilities, all the other things that any supervisor does.

Storey: Tell me about your promotion there. What happened?

Creating Marketing Plans for Renewal of Power Contracts at Hoover and Parker-Davis

Boyce: It occurred somewhat strangely, actually, or by twist of fate. My supervisor at the time, when I was just a public utilities specialist, by this time I had achieved my Grade 12, so it was probably early 1980, somewhere in that time frame, I guess, Western had started to investigate what was going to be necessary to renegotiate the contract[s] for Boulder Canyon Project, which were going to expire in May 31st of 1987. Also there were some Parker-Davis contracts that were going to expire in, I believe it was 1985, in that time frame.

So, the area manager, at that time, Bob Olson, in bringing his senior management group together, the assistant area manager for engineering and for power marketing, as they huddled and with guidance out of the Golden office, they determined that they would have to develop a marketing plan. The formation of this marketing plan was going to take a great deal of effort and essentially became almost a full-time job. It certainly was going to be a full-time effort for the better part of three, four, maybe even five years.

While the marketing plan was developed, it went through its public process. It was finalized. It was implemented. Then, of course, you had to go into the contracting phase of that, the rate-making phase of it. All of that had to really have a great deal of close coordination and leadership in that area. So, the area manager earmarked my supervisor, Tom Carter, and another public utilities specialist that had come from the Phoenix Project Office up to work in power marketing. Those two individuals basically went off and formed this ad hoc group to develop the marketing plan, and they basically went off into their own area and started developing the marketing plan.

". . . they took . . . my supervisor at that time . . . to head up this marketing plan development group. They put me in as his acting. And . . . they decided that that was going to be probably a four- or five-year effort. . . . changed my supervisor's position to a special assistant to the area manager for marketing development and moved me in as the head of power marketing and rates. . . ."

Then they took my boss, my supervisor at that time, appointed him to head up this marketing plan development group. They put me in as his acting. And as time progressed and we saw the length of time that was going to be required to bring the

marketing plan together and consummate it, they decided that that was going to be probably a four- or five-year effort.

So they basically changed my supervisor's position to a special assistant to the area manager for marketing development and moved me in as the head of power marketing and rates. I basically applied for the job. I think there was actually one other applicant for it. Yeah, there was, but that happened to be the individual that put in for the head of the contracts branch also. So he got the head of the contracts branch and I got the head of the rates branch, is the way it worked. Basically, I recall, I think he applied for my job and his job, and I applied for his job and my job, and I think we were the only two applicants for the two jobs, and it was kind of which one do you really like to do. I said, "I like to do numbers," and he said, "I don't like numbers, I like to do writing." So I think that's the way the coin was tossed and the way it worked out. So it worked out pretty good. That person was a fellow by the name of Jim Kesselberg, who is now in the Loveland office of Western at the present time.

Storey: Tell me about Bob Olson.

Bob Olson

Boyce: Bob Olson was one of those individuals that was really difficult to work for, but an absolute pleasure to work for. I don't know whether I was more in awe or terror of Bob, and yet I believe he's an extremely good friend, too. Bob was an extremely demanding area manager. He had a pretty good concept of what he wanted to get accomplished. He would come up with a lot of good theories about, "Well, if we were to do this, we could probably do this," type thing. He really looked to the staff to either prove that his theory was correct or it wasn't correct, and if it wasn't correct, what modifications could be made in order to make his ultimate goal be successful.

"Bob was . . . one of the most personable people-type supervisors I've been around. He knew his staff, knew them personally. He expected a lot of hard work, but when the work was over, he expected the staff to play hard . . ."

Bob was one of the individuals, one of the most personable people-type supervisors I've been around. He knew his staff, knew them personally. He expected a lot of hard work, but when the work was over, he expected the staff to play hard, also, and ninety-nine times out of a hundred he was probably the instigator of most of the play time. He was very conscientious and very rewarding of hard effort. He was not a bit bashful about telling you you had done a good job, but on the other side, he would also tell you if you did a bad job. But you never really had to doubt where you stood with Bob. He expected you to do your best, and as long as you did your best, that's all he expected of you. If you made an error, okay, fine, we'll work through the error and we'll get it rectified and we'll resolve it. He didn't hold a grudge.

It was a refreshing type of atmosphere to work in, but because of that atmosphere, we were all willing to give Bob 150 percent of our time, and did routinely. It's not that he asked for it, it's just that we respected him, and the staff as

a whole would all turn to. Many a weekend we would be in the office working on a special project, and Bob would be there, also, to work with us, to make sure that we were getting it focused the way he wanted.

He expected a professional product to go out. If we were doing public meetings, he wanted professional presentation, professional-type graphics. He would basically make sure that we went through more and more dress rehearsals. He sat through them religiously. He would comment on the presentation. He would ask questions. He would help strengthen the presentation. He would comment on the visual aids. If he didn't like the colors, if he didn't like the way it showed, if it didn't seem to present the message that we needed to present, he would critique it.

But, there again, it was a tight-knit team, and it was team effort from the boss to the bottom. The people in the word-processing effort would be in there during the dress rehearsals, (a) to learn, because Bob used these public presentations when we would do the dress rehearsal, he would bring the staff in as a training tool so that other people who weren't working in that particular area of our business would learn what that was about. But he would also expect those people, as they were sitting there, not to just sit there and just listen and be a sponge, but to say, "Well, that slide there says this, but your presentation said something else." So, when you did your dry runs and your dress rehearsals, you had literally a very large group of critics sitting there, not criticizing you, but helping you do a better job at making sure that the slides hooked up with what you were saying, making sure the slides said what we wanted it to say, make sure that the words were spelled right on the slides, those type of things.

So the whole office was involved in that process. The clerk typists out of word processing, they would be there, too. In some instances, they would be there taking notes. They would be following your script. They would be editing. They would be correcting grammar, whatever it took. But it was an entire office effort when we put on a public meeting. Everyone was there. I mean, there was maybe one person out answering the phone, and the rest of us were in the conference room going through it. If it took all day, than it took all day. If it took into the night, it took into the night. If we ordered pizza in, we ordered pizzas in. But that's the way Bob worked.

When the show was over, when the public meeting was over, Bob was probably the first one to hand somebody a handful of money and say, "We're having a party at my house tonight at six o'clock. Swing by and pick up a couple of kegs of beer and hors d'oeuvres and whatever," and we'd party, and we'd party until the wee hours of the morning, if need be. Or we'd have it at somebody else's home. But that was the way Bob worked, and it was very much of a family-like atmosphere. Of course, it was a small group of people, but we all worked together much like a family did, and it was a lot of fun that way.

Reminded me a lot of the time when I went into my first squadron in the Navy. We were a small squadron. We worked the same way. You really get to know your contemporaries. You get to know everybody. You know their wives, you

know their kids, they know you, they know your wives, they know your kids. And you're all very much involved, must like you are as a family. A lot of fun and you didn't mind the hard work.

I don't see that type of atmosphere today, not in Western's offices, not in our offices. I think maybe we're all the worse for it, because it's just not the same camaraderie that existed twenty years ago.

Storey: When you became the supervisor, that was a promotion?

Boyce: That was a promotion. I went from a Grade 12 to a Grade 13. That occurred while I was working for Bob, as a matter of fact.

END SIDE 2, TAPE 1. DECEMBER 15, 1997.
BEGIN SIDE 1, TAPE 2. DECEMBER 15, 1997.

Storey: This is Brit Allan Storey, Senior historian of the Bureau of Reclamation, interviewing Harvey Walter Boyce, on December 15, 1997.

That was when the government–

Boyce: The government, they went into the SES-type program, they went into the general merit pay grades, and thank goodness they've gotten away from those. So I was a GS-13 for a while, and then I became a GM-13, which now that I'm back working for Mike, I'm back as a GS-13. So it's been kind of an interesting evolution of the various government pay plans.

Storey: When did you become a supervisor?

Boyce: Gees, I should have looked. I would say it was probably '82, somewhere in there, maybe earlier than that. I just don't remember, to tell you quite frankly. I'd have to go back and look at my personnel records. It seems like it was '82 or '83, somewhere in there. I know I was probably ten or eleven years, maybe longer, as a supervisor before I left Western. So I was in that grade for quite a while, in that position, I should say.

Storey: And you left in '90.

Boyce: In '90.

Storey: Tell me about why you left.

Left Western in 1990 When the Office Moved to Phoenix

Boyce: I left Western mainly because they decided, for whatever reason, to close this office in Boulder City and expand the Parker-Davis Project office and make it the Desert Southwest Regional Office for Western. The reason for that was probably–a lot of it was political, but in all fairness to Western, probably not a bad idea, inasmuch as the

greatest concentration of this regional office's customer base is in the Arizona vicinity. There's very few customers, actually, in southern Nevada, probably less than a dozen. There are about that same number in the lower half of California. So the greatest concentration of customers [is], really, in the Arizona area, and it made it more feasible and probably more accommodating for the bulk of their customer meetings to occur in the Phoenix area. To do that when their office was here, they would have literally go down and rent a hotel ballroom or something in Phoenix to conduct their public meetings. So it probably, from not only the political but from the customer base, perspective, was a good move for them to make. I guess time will tell whether that was good.

In my opinion, it was a little on the costly side, inasmuch as they had just remodeled that Mead complex for the third time and had spent a number of millions of dollars in that renovation and then turned around and literally have to build an entire new complex in the Phoenix office, because, for all intents and purposes, they literally demolished the old Phoenix office complex, the buildings down there that housed the Dispatch Center, and then the project offices were literally all demolished and the entire complex built down there.

So I guess if the customers don't mind paying for the debt service on that, I guess it's all right politically, but it did make sense from the logistical perspective for Western to do that. It's just I felt the timing was rather poor. But that's why I left. I was offered my position in Phoenix, and I just, for a number of reasons, didn't have a desire to relocate to Phoenix. So I had twenty-five years' of Federal service at that time and said, "Thank you. I'll take an involuntary retirement."

Went to Work for the Colorado River Commission in Nevada

And as it happened, the Colorado River Commission in Nevada had a position opening, public utilities–they don't call them public utilities specialist in the state government, they call them power marketing specialist or something to that effect, but they had a position opened up, and I applied for it and was selected. So I left Western on a Saturday and started with the state of Nevada on Monday.

Storey: Did you have a lot of contact with Reclamation in that job?

"I now was sitting on the other side of the table as a customer, as opposed to being on the Federal side . . ."

Boyce: I did only from the perspective of dealing with people that I had worked with, like Denny Carlin, Mary Goudy, Ann Garner, those type of people, both with the Western staff until they were physically relocated in Phoenix, and the Reclamation staff here. Because I now was sitting on the other side of the table as a customer, as opposed to being on the Federal side, my contacts with Reclamation and Western probably were about the same as they had been, obviously not as often and not as concentrated, but certainly, when it was involving a rate issue or a contract issue with the Federal government, I was involved with that, from that perspective.

Storey: You were there three years, more or less.

Boyce: About three, a little over three years, leaving there in June of '93. So, going to work in September of '90 through to June of '93, it'd be a little over about three years and three months, or six months, something like that.

Storey: Why did you leave there?

Left the Colorado River Commission in Nevada for Better Pay and to Assist with the Care of His Father in Law

Boyce: Well, (a), it didn't pay enough. The state pay scale is not nearly as lucrative as the Federal pay scale, although I had received two promotions while I was at CRC. The fact that I was having to commute to Las Vegas, there wasn't any public transportation at that time, so essentially I was driving, round trip, about sixty miles a day, which, in itself, is not that bad, but the other side of it, too, was that between what I was making with the state and my retirement annuity, I was still, in effect, losing money by working for them.

The other fact was that my father-in-law was extremely ill at that time. He was being taken care of by my wife in our home, and it was getting more difficult for her to handle him, and I just really needed to be close by to give her assistance, where I could, (a), get home if she needed help in a hurry; (b), if nothing else, I could help her at lunchtime. I could be home by 4:00, 4:30, instead of 5:30 or 6:00 at night and give her some assistance with him.

Came Back to Reclamation as a Power Operations Specialist

So it was just really a decision–I had no reason to leave C-R-C at all. I enjoyed working with them. There again, it was a small office, about nineteen, twenty, twenty-one people, a good group of people to work with, a lot of good friends, very much the family atmosphere that we had had under Bob Olson's regime. I really enjoyed that type of a relationship, but it was just more of a personal nature that I needed to relocate, and I had an opportunity to come to work back again as essentially a public utility specialist. They call it a power operations specialist, but there's not a nickel's worth of difference between the two positions other than the fact that, as a power operations specialist, you are expected to have some powerplant experience, which I had had with the city of L-A and that. So that qualified me. And that's why I came back to work, just merely as a means of expediency and personal convenience.

Storey: Did you find the job opening, or did somebody come to you?

Did Contract Administration and Gathered Statistics

Boyce: As I recall, they were in the process of advertising a job, and I was made aware of it, and I applied for it. Of course, having left Western involuntarily, so to speak, I was eligible for reinstatement, and so I basically applied for reinstatement under that

perspective. I don't know if there were other applicants for the job or not. I guess, under a reinstatement, they still have to advertise and go through that process, and I guess my name went in the hopper along with everybody else. So I don't know if there was another applicant for the job or not.

Storey: And what is the job?

Boyce: That job was basically doing the same thing I'd been doing all the way along. It was contract administration. It was statistical-gathering, really more contractually based than it was statistical. I spent a great deal more time involved in our Navajo steam plant at Page, Arizona, involved in negotiating contracts for our entitlement in that steam plant.

Storey: I would have thought that had all been done long ago.

Developed a Contract for the Sale to the Salt River Project of the Balance of the Navajo Steam Generating Plant Power Not Needed for the Central Arizona Project

Boyce: It actually hadn't. It had, but it hadn't. That's kind of a weird thing, because with Western's marketing plan, Navajo had been incorporated in it, but the phase of that marketing plan really hadn't been fully executed, and that was the development of the New Waddell storage facility, the pump storage plant there. All of that came along during that period of time that I was with C-R-C, but the final contractual obligations of taking the share of the government's entitlement from Navajo that was not being utilized by Central Arizona Project for pumping purposes, and maximizing that surplus power sale really hadn't been done, or hadn't been done very well. Certainly we weren't gaining the revenue stream that we really needed to have in order to do all of the things that the CAP enabling legislation envisioned.

So, through and in concert with Western and with the Central Arizona Water Conservation District, we negotiated a–well, actually there was two contracts negotiated. I was involved in the negotiation of the second one. The first one started just as I was leaving Western and was consummated just before I came back to Reclamation. Then there was a subsequent contract in between that one, and then the third contract, that I principally negotiated along with Bob Johnson, t~~he regional director, well, I was,~~ at that time, assistant regional director.

Between those three contracts, all of the power entitlement that the United States has from Navajo steam plant was brought under contract with Salt River Project, who was the only agency or entity that was willing to step up and pay the freight.

". . . one by one those other entities seemed to fall by the wayside. They just didn't see that that Navajo surplus was going to be the type of power that they needed for their systems . . ."

There had been, in the marketing process, I think Arizona Public Service had indicated an interest, Tucson Electric had indicated an interest, and Nevada Power,

and I think even C-R-C had for awhile. But as the contract negotiations went along and the amount of the commitment that was going to be expected, one by one those other entities seemed to fall by the wayside. They just didn't see that that Navajo surplus was going to be the type of power that they needed for their systems, so they just opted out of the negotiations and fell by the wayside, leaving ultimately Salt River Project, and they probably, in hindsight, were the most viable entity. They certainly fit all the marketing criteria extremely well, *and* they were willing to pay the dollars.

So I think it was one of those contracts that, as it evolved, was probably the only way that it could logically turn out sufficient to protect the investment of the United States and guarantee its ultimate repayment. I think it's one of those win-win deals where the water districts got a guaranteed supply of water or, certainly, the power for pumping the water when they need it. Salt River's got a good deal, because when they're not using the Navajo power, they can integrate it into their own system. The United States has got a good deal, in that we've got the assurance that the United States investment in this project will get repaid. So I guess that's one of those win-win deals as far as the contract worked out.

That contract will run until, I believe it's 2000–or actually those three contracts will run until the year 2011, and then they're up for renewal, and I think, quite frankly, Salt River Project has almost a first right of refusal on the renewal, and I would suspect that the–and maybe this is just my speculation–that a new contract that will basically embody the contents of all three of the existing contracts will be written so that we only have one contract to administer, rather than three. It would be more efficient that way, so I suspect that that's going to be part of the new terms and conditions of the new contract in 2011. I don't plan on being here when that's done, however, unless I'm here as a consultant at an extremely high hourly rate. [Laughter]

Storey: How does coming back affect your retirement?

How Being Reinstated in the Federal Government Affected His Annuity

Boyce: It doesn't, actually. Being reinstated as opposed to being a reemployed annuitant, had I been a reemployed annuitant, I would be just that, I would be getting part of my salary from the civil service annuity and then the balance would have been paid from Reclamation. In this case, when I came back to work for Reclamation, my annuity that I had been receiving from civil service is suspended in favor of my drawing my full salary from Reclamation.

At the end of five years, which will be somewhere around June of '98, according to civil service rules, I will then be able to have the new time from June of '93 through June of '98 added onto my previous service time, and basically, if I were to leave, say, in July of '98, they would recalculate my annuity by just extracting that block of time out and compressing my full civil service time together and recalculating it.

Storey: And so your high three would also change.

Boyce: My high three *definitely* would change, because I'm back at a Grade 13 and I'm at a higher pay scale as a 13 today than I was as a 13 when I left Western in 1990. So it would definitely be a recalculation.

Storey: So you were C-S-R-S when you left.

Boyce: Right.

Storey: And when you came back, you were able to stay on C-S-R-S.

"When you come back as a reinstatement, you come back exactly as though you'd never left . . ."

Boyce: When you come back as a reinstatement, you come back exactly as though you'd never left, for all intents and purposes. Your seniority is the same as though you had been here all the way along, as opposed to a reemployed annuitant whose seniority is *zip*. In other words, a reemployed annuitant serves basically at the pleasure of the regional director. In the case, for example, of a RIF [Reduction in Force], well, reemployed annuitants are first out the door along with the temporaries. If there were a RIF now, I'd be one of the very senior people around that's–if you start looking at RIF lists, which they did when they were doing the reorganization a few years ago for this region, and effectively they just told me to stick around, they'd hand me the keys, and I could turn the lights out and lock the door, because I'd be the last one out. So there's some real benefits coming back as a reinstated employee as opposed to a reemployed annuitant. There's a great deal of protection there that a reemployed annuitant just doesn't enjoy.

Storey: What was the next step in your job?

Boyce: Well, from there, of course, I stayed as a public operations specialist until–

Storey: Power operations specialist?

In 1997 Transferred to the Power Resources Office in the Program Analysis Office

Boyce: Power operations specialist until March of '97, I believe it was, February-, March of '97. March, I believe it was, early March of '97. And that's when I transferred to the Denver office's staff, even though I'm located in this region, essentially assigned to the Power Resources Office, which is a branch or a division of the P-A-O office, which is Program Analysis Office, which is a office under the commissioner's office. So, effectively, I guess, I technically work for the commissioner even though I'm two or three steps down the line from there.

Storey: How did that job come available?

Boyce: That job was basically a position that was established to accomplish implementation of some of the recommendations that came out of the "power management laboratory" effort. Fundamentally, it was to implement the recommendations that one

of the work groups had made that we needed to establish a continuing database of power production costs that needed to be validated. We needed to look at our overhead costs, look for efficiencies, economies of scale, and the power resources office really didn't have anyone that had not only the public utilities background but also the financial background.

Having worked as a work group leader for the power management laboratory, Mike Roluti saw my background, saw the work effort that I did, and basically, through some negotiations and with the concurrence of the commissioner, established a position, and I was directly appointed into that as a public utility specialist and as Grade 13, which is a legitimate process to do and which assured Mike of getting the individual and the type of background that he needed in that position, as opposed to a standard vacancy announcement. Especially when we had the quasi-RIF situation going on, the likelihood is that somebody with minimal qualifications or probably minimal experience in the public utilities industry would have stepped into that job, and Mike wouldn't have been able to accomplish what he was chartered to do. So that's how I got the job.

Storey: Once again, what is it you're doing?

"I'm public utilities specialist, and my functional title is coordinator of Reclamation's power resources financial performance, and that's not doing the finance work for the powerplants, it's basically looking at their financial performance. . . ."

Boyce: I'm public utilities specialist, and my functional title is coordinator of Reclamation's power resources financial performance, and that's not doing the finance work for the powerplants, it's basically looking at their financial performance. It's taking the other end of the finance effort as it's recorded in our books and consolidating that into actual power costs so that we know at each powerplant what it's costing us to do our maintenance effort there, what it costs to do our operational effort, what it costs to do our overheads on a per-unit basis of energy production. That is the type of information that our customer group is *demanding* of us now in this age of deregulation.

"So we are seeing more and more . . . customer-Federal partnerships being formed where the customers are providing the financial basis to our projects before the fact, rather than after the fact. And the effect of that is it reduces the amount of budget authority Reclamation has to go to the Congress with. Thereby, it reduces the amount of Federal debt that's being incurred as appropriations are granted. . . ."

That is the type of information that our partners and our new partners are expecting of us to provide so that they can operate effectively as a board of directors as they now advance-fund our O&M programs at Parker-Davis. At Central Valley Project they're now doing that. I believe they're starting to do that up in the Pick-Sloan basin area. They're doing it at Hoover. So we are seeing more and more of the customer-Federal partnerships being formed where the customers are providing the

financial basis to our projects before the fact, rather than after the fact. And the effect of that is it reduces the amount of budget authority Reclamation has to go to the Congress with. Thereby, it reduces the amount of Federal debt that's being incurred as appropriations are granted.

"Our power program is starting to become effectively self-sustaining. It's basically paying for itself by the customers doing the up-front funding for us. They, in effect, are prepaying for their power bill . . ."

Our power program is starting to become effectively self-sustaining. It's basically paying for itself by the customers doing the up-front funding for us. They, in effect, are prepaying for their power bill, is what they're doing. They get their power in compensation for the money that they're advancing. Probably it is going to be the wave of the future, certainly as power. I don't know whether water users will ever get into that arrangement or not. Probably not in the short term. Maybe in the long term. And, again, that will depend on their–"their" being the water users– concern or trepidation about loss of the Federal resource.

If privatization were to occur, there may be some jeopardy to the water users that have enjoyed the benefits of Reclamation's developing water projects. Only time will tell, and only the politics involved at the time will let that play out. But certainly the power users, and, again we talked earlier, the power users are not our priority in Reclamation. They probably have a tertiary or even a fourth position as far as our priorities of what Reclamation's in business for.

We're a water-management agency now. Our obligation is to make sure that there's no flooding, that we store water, that we deliver water when it's needed so that we can provide for the economic stability of the irrigators in our projects. Power is a byproduct, pure and simple. We use the revenue that we receive from power production that occurs only as we have a demand for water to move through the generators–

END SIDE 1, TAPE 2. DECEMBER 15, 1997.
BEGIN SIDE 2, TAPE 2. DECEMBER 15, 1997.

Boyce: . . . that revenue from power is there to assure the stability and the repayment of the *project*. The project isn't just the power features of the project. It's all of the water, it's the flood control, it's all the other things that have been allocated through the cost allocation process to be repaid. Power probably picks up on an order of magnitude somewhere around 70 percent of the total cost of Reclamation's projects that have a power feature associated with them. So there's a real need to have a self-sufficient power program, but also that power program has got to assure enough return of the *debt* back to Treasury to pay not only the features there that are purposes for generation of power, but all the ancillary features, such as the dam and the waterways and the spillways and all of that, which don't do a *thing* to generate power other than

provide the facility generally for the powerplant to be there. All of those things will be paid *also* by that power revenue dollar.

"So it's in everybody's best interest, not only the power community, but also the water users' community, to ensure that Reclamation stays in business and manages these projects because, quite frankly, there's an economic benefit to both the power and the water customers. They're getting a very reliable resource at a very reasonable cost . . ."

So it's in everybody's best interest, not only the power community, but also the water users' community, to ensure that Reclamation stays in business and manages these projects because, quite frankly, there's an economic benefit to both the power and the water customers. They're getting a very reliable resource at a very reasonable cost, probably a cheaper cost than they can buy elsewhere on the market. And I think they are astute enough individuals collectively and singularly to recognize that, and it's one of those things that basically they take care of us and we're taking care of them.

Storey: One of the things that interests me, I believe it's called cost-of-service power.

"Cost-of-service power is the way Reclamation and Western . . . with the sole exception of the Navajo steam plant, the power is sold for what it costs to generate it. . . . That means also the cost to do . . . debt service . . . our debt service, our profit margin, if there was any, goes strictly to debt service. But if we do strict cost of service on an annual basis, we ensure that we pay for that year's cost of operation, maintenance, and replacement or repair of the facility, plus repaid that year's loan installment, with interest, back to Treasury. That's the minimum and, effectively, the maximum that we can sell power for. . . ."

Boyce: Cost-of-service power is the way Reclamation and Western and BPA–well, I don't know that BPA is. To some extent BPA is, but essentially Reclamation law, where it's associated with Reclamation projects, with the sole exception of the Navajo steam plant, the power is sold for what it costs to generate it. Now, that doesn't mean just the operation of maintenance and repair cost on a yearly basis. That means also the cost to do anything else, such as pay the debt service for those things that are assigned to power to be repaid. And that's no different, actually, than anybody in the private utility business does, except they do have a profit margin which, of course, basically goes back to their stockholders. Our stockholders, if you will, is the Treasury of the United States. So when we do our debt service, our profit margin, if there was any, goes strictly to debt service. But if we do strict cost of service on an annual basis, we ensure that we pay for that year's cost of operation, maintenance, and replacement or repair of the facility, plus repaid that year's loan installment, with interest, back to Treasury. That's the minimum and, effectively, the maximum that we can sell power for.

How Power Revenues Benefit Irrigation Components of Projects

Storey: But, one of the things that is often talked about is the amount of subsidy for irrigation that comes from power. How does that happen under this system you've just described?

Boyce: It's so simple it's ludicrous. When we talk about cost of service as I just described it, one of the things that's included in cost of service is debt service. Now, if we build a facility–let's say the Parker-Davis project, two dams there, powerhouses, there are some irrigation obligations and costs associated with those. One key one is assurance of the service of the Mexican Water Treaty of 1944. We have to ensure–Reclamation has the obligation to ensure that there's 90 cubic feet per second of water that goes across the international boundary at Yuma. So those costs associated with delivery of water that are in the national best interest are assigned to power to repay. So that's a subsidy, if you will. The power users get no benefit for water going across the boundary other than the fact that it ran through the generator. But they got power for that, but they don't get a benefit for the acre foot of water going across there once it leaves the generator, but yet they get to pay for all of the things to ensure that it gets across the boundary.

If we go in and build–let's say we build the Roosevelt Water District or the Coachella Valley Water District and it's built with money that's appropriated from Congress, the facility is built. There's no power facility associated with it, and it's turned over to the Coachella Valley Water District to administer, to operate, to maintain, etcetera, but they have a *repayment* contract to be paid to the United States, basically, for the cost to build that water facility. If, through a formula process that has been developed–and I'm not an expert in this field–but Reclamation officials sit down and they determine what the acreage that is being supplied by this irrigation district, what it will, in effect, yield as far as crops and crop revenues–

Storey: The so-called ability to pay.

Boyce: Yeah. And so they figure out, based on their profit margin, if you will, what their ability is to repay that loan. I don't know the mechanics of it. It's somewhat circuitous, I guess, but whatever the obligation that they have to repay the water project and their ability, whatever that difference is, if there is a difference, that they *cannot* repay all of it based on what their yield is out of that acreage, then the secretary has the right, the authority, if you will, to take that inability to repay "Δ" [said as "Delta," e.g., a math symbol], between what they can pay and what they're obligated to repay, and literally move it over to the power users, and it becomes a true subsidy.

Storey: As part of that repayment formula.

Boyce: Part of the power users' repayment formula, and it basically comes in as a debt, not unlike the cost to build Parker Dam, not unlike the cost to build Davis Dam, not unlike the cost to build the powerplants there. There is this thing called "irrigation aid," and irrigation aid is a debt that has no interest. It's a non-interest-bearing loan, if you will. We don't even charge the water users for that type of repayment, or at least the irrigation subsidy has never had any debt service with it. So while it's a

loan, it's a loan that the power users didn't enter into, but it's a loan that they basically have assumed. That's the risk that they take, I guess, for having the power contract.

We also have some other facilities that are associated with the reclamation of land, such as we do along the lower Colorado to maintain the Colorado River within its banks, to provide for the proper salinity content–quality of water that goes across the boundary. All of those are costs that are deemed to be in the national good, if you will, and those are *not* part of a contract or repayment contract with anybody, but they *are* a cost that is brought back into the project, the power project, if you will, the Parker-Davis Project, in this case, and is, quite frankly, being subsidized or being repaid, and through its repayment is a subsidy to the general populace of the United States that the power customers are picking up.

Here again, it's just the risk that they incur, the obligation that they take on when they sign a power contract. It sounds very heinous when we do that, but the other side of it is that they're getting very low-cost power. Reclamation, on the average, probably is selling power–systemwide, our cost of power is somewhere around six mils, three to six mils. Well, out on the open market, these companies can't *buy* power for that kind of price, and they don't have the embedded capital cost that we have. So what they're doing is, basically, they're getting the power facility at no capital expenditure other than the debt that they're repaying, and they're repaying it at generally three or four or five percent interest, not at very high interest rates. I think the present interest rate is running somewhere between six and seven percent on Federal dollars that are appropriated today.

How Power Contractors Benefit Even Though They Are Paying off Irrigation Component Costs

But when you stop and look at when most of these projects were built, they were pre-1960. We were still in the era of three percent money–Federal Treasury rates. We did *not* see until the late seventies the double-digit inflation rates and cost of money from the Federal Treasury. So when you're paying off, essentially, a three percent note or you're paying off a *zero* percent note in the case of the subsidy, you're not really being harmed, and yet you've got this power resource that you didn't have to go out and *buy* the capital plant, build it, at eight or nine or ten percent money.

"So it's a pretty good deal when you look at it in that perspective. I mean, it really sounds like the power users are getting a real rub to it, and, quite frankly, new power customers coming into the system really believe that they *are* being somewhat badly done to until the old-timers sit them down in the corner and explain to them what such a good deal they really do have. . . ."

So it's a pretty good deal when you look at it in that perspective. I mean, it really sounds like the power users are getting a real rub to it, and, quite frankly, new power customers coming into the system really believe that they *are* being somewhat badly done to until the old-timers sit them down in the corner and explain to them what such a good deal they really do have. It's kind of fun to watch, over the years,

the new power customers come down the road, and they come in full of fire and brimstone and "*How dare* you sell power, and we have to pay the subsidy?" and da-dah, da-dah, da-dah, and then, after a while, they've had very private conversations with some of the old-timers, and they come in, "You know, this is really a very good deal." [Laughter]

Storey: Did you have anything else you wanted to talk about?

Boyce: I don't have anything other. I think we've pretty much covered the waterfront.

Storey: There was one last question very quickly, I think.

Boyce: Before you ask it, early on in one of our sessions when we were talking about Bob Olson and the power group here–I was trying to think of the gentleman's name who was actual head of power. That was Byron Miller, and he's still here in Boulder City, still around. Bob Olson actually worked for By Miller at the time that he became the head of Western's Boulder City office. I think we did talk about Roy Gear early on in one of our sessions. He was the head of the water group and then eventually became assistant RD. I, just as a side note, happened to run into Roy Gear at the store about two weeks ago. So he's still doing very well.

Storey: You were involved in the renegotiation of the Hoover contracts, I believe.

Boyce: Yes.

Storey: Do you remember some folks named Ted Mermel and Ed Weinburg, by chance?

Boyce: Ed Weinberg I have met. I mean, I've been at the negotiating table with Ed Weinburg.

Storey: What was he like to negotiate with?

Ed Weinberg

Boyce: Of course, this was after Ed had left Interior and had gone into private law practice, I guess in Washington. I think he had a firm back there. And he, along with Ely–there again had enough Interior and Reclamation law to teach us all. Ed was one of those people that–extremely knowledgeable of the law, but my contact with him and watching him at the negotiating table, he was not necessarily the principal negotiator. He generally was as a consultant or under contract with one of the entities that was party to the Hoover contract.

Northcutt (Mike) Ely

I remember Northcuttt Ely was special counsel to city of Los Angeles, L-A-D--W-P, and Southern California Edison. It seems to me that Ed Weinburg was maybe either with the state of Nevada or with the state of Arizona, and I just don't remember right off. There again, I know of Ed Weinburg, I know of his reputation, and I've

seen his work, obviously, in the various Reclamation law books that we have available to us where he had rendered opinions and notes of opinion and that. From everything that I've ever seen or heard or had any dealings with him, it seemed to me like he is a very competent attorney. It would have been interesting to watch him sort of speak in his prime, much like it had been, I think, extremely interesting to watch Northcutt Ely in his prime. Having dealt with him kind of on the cusp of their career, so to speak, it was entertaining and educational, to say the least. I'll bet you that during their prime time, they were *extremely* talented lawyers.

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

Boyce: Yes.

Storey: Good. Thank you very much.

END SIDE 2, TAPE 2. DECEMBER 15, 1997.
END OF INTERVIEWS