ORAL HISTORY INTERVIEWS

Gordon Estes

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STATUS OF INTERVIEWS:
OPEN FOR RESEARCH

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Interviews Conducted by:
George Petershagen, Historian
Bureau of Reclamation

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GORDON ESTES

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

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

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

capitalized but abbreviated usages are not, e.g., Division of Planning as opposed to "planning;" the Reclamation Projects Authorization and Adjustment Act of 1992, as opposed to "the 1992 act."

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

Introduction

In 1988, the Bureau of Reclamation created a History Program. While headquartered in Denver, the History Program was developed as a bureau-wide program.

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

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For additional information about Reclamation's History Program see:
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Oral History Interviews
Gordon Estes

Petershagen: This is George Petershagen conducting an interview of Gordon Estes on behalf of the Bureau of Reclamation. This is Tape 1, Side A, and this is June 10, 1994. Gordon let's begin by talking about your personal background. Where and when were you born?

Early Life

Estes: I was born May 27, 1922, in the little town of Biggs in northern California.

Petershagen: And did you go to school in Biggs?

Estes: No, I lived most of my life here in Sacramento. I went to high school at Christian Brothers High School here in Sacramento. I graduated in 1940. I'm seventy-two years old now. I attended the Grant Technical College, which is now the American River College, a two-year organization. I went to Stanford under the A-S-T-P program in the Army.

Petershagen: What does A-S-T-P mean?

Estes: The Army Specialized Training Program and took an engineering curriculum. After I got out of the Army, I went back to Stanford and left the organization in my senior year, went to work here in Sacramento, building homes in West Sacramento under my father's general contracting license.

Petershagen: I see. So, are you saying, then, you never did graduate from Stanford?

Estes: That's correct.

Petershagen: Less than a year short?

Estes: Yes.

Petershagen: And what did you do in the Army?

Estes: I was in the Signal Corps–radio operator and technician.

Petershagen: So, you've really had a technical orientation all your adult life.

Estes: Yes, that's correct.

Petershagen: How long were you in the construction business?

Estes: About two years, and then I went to work for the Bureau of Reclamation.

Joins Bureau of Reclamation

Petershagen: And why the Bureau of Reclamation? Why does a house builder go to work for the Bureau of Reclamation? (Both chuckle)

Estes: I had enough technical training. I went to work for the Bureau because of the opportunity that was there. I started as a draftsman in 1949. Later worked up to engineering positions and on up to the head of the Power Division, and later to the Western Area Power Administration [WAPA and/or Western].

Petershagen: And when you say you began as a draftsman, was this largely related with electrical kind of design projects?

Estes: It was exclusively power-oriented. This is single-line diagrams for servicing power loads in the northern California area.

Petershagen: So, you're talking about transmission and distribution kinds of things.

Estes: That's correct.

Petershagen: And about how long were you a draftsman?

Estes: About a year. Then I went to a junior engineering position, worked on repayment studies–power operating studies.

Petershagen: The repayment studies were part of your initial duties as a junior engineer?

Estes: Some of the aspects of repayment studies, yes–calculations and so forth.

Petershagen: And what are repayment studies? What sort of calculations did you do?

Estes: These are the calculations that indicate how the power facilities are repaid and surpluses that might be available to subsidize the irrigation function of the Bureau and the Central Valley Project.[1]

1 The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range in the north to the semi-arid but fertile plains along the Kern River in the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods, but the CVP also improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation and enhances water quality. For more information, see Eric A. Stene, "Central Valley Project: Overview," Denver: Bureau of Reclamation History Program. www.usbr.gov/projects/pdf.php?id=253.

Petershagen: A goal of the repayment, as I understand it, was for electricity always to subsidize the irrigation aspect of the project. (Estes: That's correct, yes.) So, there was an assumed component, then, in your study, something that had to be met that would create a surplus for that repayment, I take it.

Estes: That's correct. The power rates and the operation and maintenance costs of the power facilities were compiled in the repayment study to determine the repayment of the power facilities and the subsidy that might be available for the irrigation function.

Petershagen: And how long was this repayment period supposed to be?

Estes: It was a hundred years of repayment after the last power facility was added to the Central Valley Project.

Petershagen: So, it was a hundred years for each facility then?

Estes: It was *over* a hundred years for the earlier functions.

Petershagen: Oh, I see, it was in the aggregate. It was a hundred years from the last installation to cover the whole project. (Estes: That's right.) So, for early components such as Friant[2] or Shasta[3] [dams] or something like that, the repayment period ends 120, 130, 140 years.

Estes: Yes, longer than a hundred years.

Petershagen: And who did you work for at that time, do you remember? I realize that's going *way* back. (chuckles)

Estes: When I started (chuckles) I worked for George Fleming. He was the head of the Planning Section of the Power Division. Subsequently I worked for Arthur Pellinen and Ed Terhaar. This was under a Power Manager named Toliver who . . . At that

2 Friant Dam is a concrete gravity dam 319 feet high with a crest length of 3,488 feet on the upper San Joaquin River in the Sierra Nevada foothills of Fresno County, California near the town of Friant. The dam, completed in 1942, forms Millerton Lake and was built by the Bureau of Reclamation, which owns and operates the dam.

3 Shasta Dam and Shasta Reservoir are key facilities in the Central Valley Project. The dam is located about nine miles northwest of Redding, California, on the Sacramento River. Built during the seven-year period between 1938 and 1945, the dam is a 602-foot-high concrete gravity dam, which provides flood control, power, and water supply benefits.

time the Bureau facilities were spread out. The Bureau's Sacramento office was in several locations in the city. I worked on Fourteenth and J Street in Sacramento.

Petershagen: Do you recall where some of the other facilities were?

Estes: The engineering facilities were at the Sacramento Army Depot. The Planning Division was at Fourth and J Street, and another office was at the old Post Office building on Seventh and K Street.

Petershagen: Things really *were* spread all over Sacramento.

Estes: It wasn't until we rented facilities at the Town and Country Village that all the offices were brought together.

Petershagen: Spreading out, did that cause any communications problems between the various sections and offices and divisions and so forth?

Estes: It caused some delay in some of the functions that we did–partially because of communications, partially not being able to walk from one office to the other.

Petershagen: I see. You probably didn't even know everybody that worked for the Bureau by sight just because of that arrangement.

Estes: That's correct.

Petershagen: What other studies did you do besides the repayment studies?

Power Studies

Estes: We made studies of the availability of power from our hydro facilities, and the firming that would be needed. That is, the additional generation that would be needed to firm up the hydro facilities.

Petershagen: What do you mean when you say "firm"?

Estes: The hydro facilities are basically peaking facilities, and it takes generation to meet the base part, the extended part of any load in the area. And we did not have firming generation available, so we worked with P-G&E [Pacific Gas and Electric Co.] to firm up our hydro facilities and meet loads within the area.

Petershagen: So, P-G&E was actually the firming source, then.

Estes: That's correct. Originally it was planned that there would be steam generation built by the Bureau in the Delta area. This generation never came to be, and so P-G&E agreed by contract to firm up our hydro-facilities so that we could meet a load in the area.

Petershagen: As I understand it, in conjunction with that steam plant, the Bureau was also going to take care of its own transmission at that time, (Estes: That's correct, yes.) but part of the agreement with P-G&E that put P-G&E in the firming position allowed them to be the transmitter of all the power.

Estes: That's right. We transmitted the power to a central area by high voltage transmission. P-G&E owned the facilities to take that power to the various customers of the Bureau. We signed a wheeling agreement with them, that they would wheel the power to these customers of the Bureau.

Petershagen: And when you say, "wheel the power," you mean transmission or delivery of the power, correct?

Estes: That's correct.

Petershagen: And what is there about hydrogeneration that makes it peaking power?

Estes: Hydrogeneration is produced basically for limited times. It's not produced round-the-clock. So, when a load or demand requires power for a base period, the peaking power was not available for that. It was available only for the top part of the load, and it required either steam generation by oil or nuclear to produce the base load of the demand.

Petershagen: I can rely on *some* hydro, though, as base power, right? (Estes: That's correct, yes.) by building forebays in different ways to try to control the water flow.

Estes: That's right. There is a limited amount of control of the water to produce a base to meet the demand. But this is quite limited. And to meet a big load, a large load, it requires some base load generation of steam or nuclear. P-G&E had this base load facility, and therefore could firm up our peaking.

Petershagen: They must have done that at a price, though.

Estes: They did.

Petershagen: They must have extracted some sort of concessions from you. (Estes: Certainly.) Was that all in the terms of the cost? Or were there other agreements that had to be made besides just how much it was going to cost?

Estes: No, it was the fact that we were limited on the amount of power that we could produce. Therefore, they managed to hold us to a limited amount of power available.

Petershagen: I see. Now you were, if I could describe you as any sort of a specialist, it would be as an electrical specialist. You were involved in transmission and distribution, as I understand it, almost from the very day you went to work for the Bureau (Estes: Pretty much so.) and still were the day you retired from the Western Area Power Administration.

Estes: That's correct, yes.

Petershagen: During the course of the time that you worked for these two agencies, I'm sure that there were countless additions to the transmission system–some of which you may have even helped design when you were a draftsman, and some that may have

been added as you were a manager–but especially things like the intertie.

Pacific Northwest Intertie

Estes: The intertie with the Pacific Northwest was developed at the time I was with the Bureau of Reclamation. This brought in power from a coal-fired steam plant at Centralia, Washington. We bought 400 megawatts of power from that facility for ten years. And this was brought in over the new intertie that connected facilities of the Bonneville Power Administration and Pacific Power and Light in the north with our Central Valley Project. This intertie came into the northern end of our Central Valley Project facilities.

Petershagen: Now, when you talk about the Centralia plant being coal-fired–so we can call those 400 megawatts firm power, then, correct?

Estes: The 400 megawatts was firm power that came in from there, but it wasn't added to the Central Valley Project to firm up the 450 megawatts of peaking power that we sold to P-G&E. It was brought in by various entities: P-G&E was one, SMUD [Sacramento Municipal Utility District] bought a portion of the 400 megawatts.

Part of it was sent to other cities here in California.

Petershagen: So, the idea was that through the Bureau and eventually through the Western Area Power Administration, the power came in under your auspices as far as transmission and marketing was concerned, (Estes: That's correct.) but you had contracts with all these various entities that really needed the power. (Estes: That's correct.) I see. Was P-G&E a willing participant in this? Or did they try to stop it at first? It seems like it would–initially, anyhow–would be perceived by them to be competition.

Estes: Well, it was competition to a degree. They were reluctant to have the Bureau and the northern area connected, but they participated in it and cooperated in it.

Petershagen: And that was done during the 1950s, correct?

Estes: That was done up until 1980. It was from 1970 to 1980.

Petershagen: Oh! More recent than I had in mind.

Estes: That's correct.

Petershagen: As time went on, as you worked for the Bureau, of course the Central Valley Project kept expanding, becoming bigger all the time. Are there any particular projects that you recall that were especially interesting? (Tape turned off and on.) Gordon, I'm sorry we didn't get an answer to that question, but that's alright. If you'd then just tell me about what I think is the biggest study you did, and that is the study of the project's capacity.

2948-A Study

Estes: We made a study to determine how much dependable capacity could be made available from the hydro facilities of the Central Valley Project. This study was called 2948-A. This was done by operating all of the hydro facilities to meet mandatory requirements, such as salinity control, fish and wildlife requirements, municipality requirements, and operating the power facilities associated with these water releases. It was determined after much work and negotiation with P-G&E that the dependable capacity would be 450 megawatts. This is the amount that P-G&E would firm so that we could sell that amount to municipalities–various organizations–in

northern California.

Petershagen: So, when you arrive at that conclusion, then, I guess that's really good for both of the entities involved–both for the Bureau, and it looks like P-G&E gets somewhat of a guarantee to plan around, that they know there is always going to be that much demand on them.

Estes: That's correct. This study was done through the dry cycle, 1928 through '34. This was the driest cycle that we experienced in California. So, we were meeting the demands with the amount of water available during that dry period.

Petershagen: So, the assumption was that that was the real kind of a drought that you might eventually be faced with and have to serve.

Estes: That's correct. Subsequent conditions are even more worse than that period.

Petershagen: So that the study "fell short," I guess I'll say, for lack of a better term, just because the assumption was a little bit wetter, I guess, than what it should have been.

Estes: Than what we've experienced since the

study was done, yes.

Petershagen: And what you're talking about is the most recent period. (Estes: That's correct.) The late '80s, early '90s? (Estes: That's correct.)

Back in the mid-'70s I think we also had some pretty serious drought times, too. (Estes: We did.) And you were still at the Western Area Power Administration then, I think, right?

Joined Western in 1975

Estes: I was with Western starting about 1975.

Petershagen: And right about then it started getting dry.

Estes: That's correct.

Petershagen: Did that pose any special problems, do you think, for you in your position where you were really starting a new agency that was all of a sudden responsible for the delivery of electricity?

Estes: It required further negotiations with P-G&E to determine whether we could actually meet a load of 450 megawatts. It was agreed

that we would continue the 450 megawatts.

Petershagen: Was that a big problem? Did you come home from work some nights saying, "Ah, I'm not sure about this. I wish I hadn't gotten involved in this Western Area Power Administration" or anything along that line?

Estes: (chuckles) I think we all think that way occasionally.

Petershagen: Well, let's talk about Western for just a minute, and then we'll go back. Some people would suggest that the move, the creation of the Western Area Power Administration and the placing of that agency within the Department of Energy was really more a Washington political kind of thing than really a western issue. Do you concur with that?

Estes: Yes, I do, really.

Petershagen: It occurred at a time when we were really starting to take, I think, as a nation, a serious look at our energy resources and came about as a result of all of these things we still hear today, I think, about energy independence for America and different concepts like that.

Estes: This was the start of that era. Energy conservation became a major issue at the time.

Bureau Reaction to Western

Petershagen: How did Bureau employees react to this when they first heard about the possibility of a new agency being created? We all, I think, tend to look at new things a little bit skeptically and maybe a little bit fearful about the future.

Estes: I think that describes it pretty well. I think most of the Bureau personnel felt that this was maybe going after something that would be almost impossible to conquer. It was skepticism, always.

Petershagen: When WAPA was created was there ever any consideration given to placing generation in the control of the Department of Energy, too, or was that never a consideration?

Estes: I think it was considered, but the Bureau was reluctant, of course, to give up control of their powerplants. It was after negotiations of some type in Washington that it was agreed that transmission and the

marketing would go over to Western. That was the easiest breaking point. Since the power is controlled so much by water and the water demands, it's rather difficult to move just the power facilities–all the power facilities–over to Western and still operate as an irrigation facility.

Petershagen: So, I guess what you're saying then, to me–I see this from the aspect of being an electrical customer and not an irrigator, but really–the water flow is the controlling issue, and not the generation. (Estes: That's correct.) And your position that you left at the Bureau in order to go to Western Area Power Administration, what was the title of that job?

Estes: I was the head of the Power Division in the Bureau. And so, the Power Division, basically the whole division, moved over to the Western Area Power Administration.

Petershagen: And your new job at Western, what did they call that?

Estes: It was the Sacramento Area Manager for Western Area Power Administration.

Petershagen: And you were the first in that position,

correct?

Estes: Yes.

Petershagen: So, you were the last Chief of the Power Division for the Bureau's region here, (Estes: That's correct.) and the first Western Area Power Administration Area Manager. (Estes: Yes.) How did Gordon feel about this? How did you look at it when it started to come about?

Estes: Well, I was enthusiastic about it.

Petershagen: Did you see it as a challenge?

Estes: I could see it as a challenge in that it's a new organization starting up. There was a lot of things to–a lot of problems–but a lot of things to look forward to. I kind of enjoyed the challenge.

Petershagen: So, when you say that the Power Division just picked up and moved over to Western, essentially, it was pretty much job-for-job, I take it then.

Estes: Yes, we stayed right in the same location.

Petershagen: Everybody knew what their jobs were, and,

really, you got your paycheck from a different guy and that was about it, I think, in the long run, wasn't it?

Estes: That's correct, yes.

Petershagen: How did P-G&E react to that? I'm sure you've had *lots* of dealings with P-G&E managers, so you must have got an impression of how they felt.

WAPA's Relationship with Public Power

Estes: We did. But we didn't get the impression, or I didn't feel, that they felt any change at all. The power was still being generated. It was being delivered to them. It really didn't affect them in any particular way. We were still operating with them, cooperating, and they cooperating with us. It wasn't really any effect on P-G&E.

Petershagen: Now, initially you said you stayed in the same offices that you had been working in?

Estes: Yes, we stayed right there in the same building, the same office area. We expanded as the job increased and later moved to other offices in the vicinity.

Petershagen: And where were you located at the time?

Estes: At Cottage Way in the Federal Building here in Sacramento.

Petershagen: I see. Now, there must have been some response by the customer entities, too. Besides the wheeling agreements and everything else you had going on with P-G&E, you have all these contracts with SMUD and all the utilities. How did they respond to this change?

Estes: There was no adverse effect on them, and they didn't seem to be affected in any way by the move. We still had contracts with them, met those contracts. They cooperated with us. We didn't have any particular problems there.

Petershagen: So, it's fair to say, I think, then, that it happened fairly quietly and fairly peacefully. (Estes: Yes.) You just changed your job title, and otherwise, nobody noticed almost.

Estes: That's right. That's very much the case. We worked with the Bureau constantly. There wasn't any problem there at all.

Petershagen: Okay, let's stop here, and we'll turn the tape over

END SIDE A, TAPE 1. JUNE 10, 1994
BEGIN SIDE B, TAPE 1. JUNE 10, 1994

Petershagen: Gordon, we were talking about the transition from the Bureau to the Western Area Power Administration. Some of the things that happened fairly close to that time in your life were the construction of some of the facilities that have to do with the interties with the Northwest. I wonder if you could explain the Cottonwood Substation. Were there other sites looked at? I'm sure there were other options considered. And I'll tell you that the thrust of my question comes from some people inferring that the only reason the Cottonwood Substation got built was because somebody, perhaps Senator [Clair] Engle, some powerful politician, playing political games with it.

Cottonwood Substation

Estes: This may be the case, but I don't remember that other sites were seriously considered. It's possible. I don't remember that.

Petershagen: It does, I guess, to the casual observer, seem

that the Cottonwood Substation is kind of geographically removed a little bit, so I imagine that's where the question comes from.

Estes: I'm sorry. I can't really talk to that.

Petershagen: (laughs) That's fair. What things do you remember with regard to the building of the intertie facilities? Were there any real problems that had to be overcome? For example, you and I met at Dave Coleman's retirement party, and if you remember, as people were roasting him they were talking about environmental issues and the shields that had to be built for the Oregon-California Transmission Line that would prevent the birds from getting at the insulators and that sort of thing. Was there anything along that line that you had to conquer?

Environmental Issues

Estes: No, we really didn't have problems like that. I think that what you're referring to is the recent upgrading of the intertie facilities where they changed voltage up to a higher voltage and rebuilt the west side lines down the valley. We didn't have any particular

problem like that at the time I was working in the area.

Petershagen: And that leads, I guess, to a whole series of questions. In the time you were in this business, you weren't faced with the environmental regulations and that sort of thing that we have to live with today, but I'm sure you must have given some concern for the environment in construction of facilities.

Estes: Certainly, it was a consideration that we had to observe. The environmental problems didn't develop until somewhat after I had left the organization. We had some problems in switchyards. For instance, the Elverta Switchyard had some leaking capacitors that caused problems, and it was necessary for us to take up about a foot of ground under the structures and ship it off to waste disposal areas. The environmental problems that could develop from something like that caused us to re-do the switchyard.

Petershagen: You did have to make some modifications to the switchyard to prevent that from happening again?

Estes: That's right, yeah.

Petershagen: Were there any other problems like that along the line? I'm sure that some of this had to be a learn-by-doing kind of a thing (Estes: That's correct.) when you talk about a major transmission facility like we have running up and down the valley.

Estes: That's right. There were environmental considerations when the facilities were laid out, of course, but not to the extent that there are today.

Petershagen: Nothing like today's environmental impact reports and that sort of thing, I'm sure

Estes: That's correct.

Petershagen: In your dealings with P-G&E–and I'm not trying to trap you with this–but it sounds like you had the impression that most everything was on a fairly friendly basis (Estes: Yes.) where others I think would try to say that P-G&E *always* looked at the federal government's activities in the power business as being competition, and they always tried to stop it.

Estes: Obviously, they would feel that we were competing with them, but we were always on a friendly basis. We negotiated various

aspects of our facilities with them, and it was on a friendly basis. You can recognize that we were kind of an intruder in the power area, and they would negotiate from the standpoint of what can they gain and what can we gain.

Trinity River Division

Petershagen: I see. The addition of the Trinity River Division[4] to the whole Central Valley Project, I think, kind of brought that aspect of competition between P-G&E and the federal government to a head because there was a lot of discussion in the preliminaries to that, as to whether maybe P-G&E could somehow lease the generating facilities from the government, or somehow gain access to all that capacity. Were you involved in any of that?

4 The Trinity River Division on the Trinity River about 25 miles northwest of Redding. Surplus water from the Trinity River Basin is stored, regulated, and diverted through a system of dams, reservoirs, tunnels, and powerplants into the Sacramento River for use in water-deficient areas of the Central Valley Basin. Water is used for irrigation, power generation, navigation flows, environmental and wildlife conservation, and municipal and industrial needs. For more information, see Eric A. Stene, "Trinity Division: Central Valley Project," Denver: Bureau of Reclamation History Program, 1996, www.usbr.gov/projects/pdf.php?id=108.

Estes: Not really. That took place before I was at a level that I could participate in negotiations.

Petershagen: You were still a youngster learning the business then, huh?

Estes: So, to speak, right. (chuckles)

Petershagen: Did any of your studies relate to that directly?

Estes: Of course, our studies included the Trinity facilities, but we didn't make–that I know of–we didn't make studies that particularly showed that the Trinity system was separated in any way from our facilities.

Petershagen: I see. So, when you talk about . . . Well, when you did the capacity study, for example, the 2948-A study (Estes: They included the Trinity.) the Trinity was included in that? (Estes: Yes.) There are some facilities, though, that are on-line today that were not included at the time, correct?

Estes: Well, the Trinity System was–the Trinity, Whiskeytown, and Clear Creek generating facilities–and they were all included.

Petershagen: They were included? (Estes: Yes.) Any other additions to the Central Valley Project that may not have been included?

Estes: No, even the facility at New Melones [Dam][5] that has come on in relatively recent years was included.

Petershagen: Oh, I see. So, it was really a *very* comprehensive study.

Estes: It was a full system.

Petershagen: I see. I may be repeating myself now, but that was while you were at the Bureau of Reclamation, before the Western Area Power Administration? (Estes: Correct.) But that stands as the basis, with very little modification, for everything that goes on today, I think. Is that fair to say?

Estes: Yes, uh-huh.

Petershagen: Now, then that included . . . Well, maybe I'm making an assumption there. That study did not include, I would guess, outside

5 The U.S. Army Corps of Engineers began construction of New Melones Dam, completing the dam in 1978 and the spillway and powerhouse in 1979; the Corps then transferred the dam to Reclamation.

sources, did it?

Estes: No.

Petershagen: Such as the later bringing power down from Washington and things like that.

Oroville Powerplant

Estes: No, this was just our own facilities here in the Central Valley Project. There was other generation developed–Oroville Powerplant by the [California] State Department of Water Resources. There was development on the American River by SMUD, Union Valley area.

Petershagen: When you speak of Oroville, now that's a State project, of course. (Estes: That's a State water . . .) You were not involved at all in the marketing of that power as I understand it. Is that correct?

Estes: Not at all, no.

Petershagen: The State marketed that directly on their own.

Estes: The State handled their own, yes.

Petershagen: Did the Western Area Power Administration, or before that, the Bureau– did you have your eyes on that power, so to speak? (Estes: No.) Did you want to get that?

Estes: Not that I know of no.

Petershagen: So there never was a plan for the Bureau to try to market that power or develop it?

Estes: The Feather River, no.

Western's Central Maintenance Facility

Petershagen: Gordon, the Western Area Power Administration has a central maintenance facility here in Sacramento now. (Estes: That's correct.) So, can you tell us how that came to be?

Estes: Well, when I first moved into WAPA, we took over the transmission and marketing. The transmission was maintained by crews at Shasta [Powerplant] and Tracy [Pumping Plant],[6] at the two ends, basically, of our facility. We had a line over to Folsom

6 In 2006 the Tracy Pumping Plant was renamed the C.W. "Bill" Jones Pumping Plant.

[Powerplant], which was about half-way between the two crew locations. It was agreed that we would move the two maintenance facilities to Sacramento from Shasta and from Tracy–more centrally located, easier to get to locations for maintenance. There was developed a fine transmission maintenance facility at Elverta. This was developed after WAPA was organized.

Petershagen: I see, and was that pretty much your plan, or was that something you were told to do?

Estes: That was pretty much our plan here in Sacramento. It was unfortunate that we had to move the people from the two locations, but it was more convenient and a more efficient operation to get to the center part of our facility.

Petershagen: I see. And the people at Elverta, you said, are largely involved in the maintenance of the Western Area Power Administration's facilities, the transmission system. (Estes: That's correct.) I know they're also available to the customer utilities as consultants and help the customer utilities, also. Has that always been that way?

Estes: That's been a cooperative arrangement that we've always had. We've also worked closely with P-G&E crews on occasions where we would furnish help to them, and they would furnish help to us.

Petershagen: I see. And P-G&E, of course, besides their distribution crews, they have transmission crews, I'm sure. (Estes: That's correct.) When you say, "it's always been that way," you mean even going back into the days of the Bureau of Reclamation before the Western Area Power Administration came to be?

Estes: That's right.

Sacramento Municipal Utility District

Petershagen: It seems to me that Western–and I guess even before that, the Bureau–has really had a good working relationship with SMUD, especially, I think, of all the utilities. (Estes: Yes.) I don't mean to imply that there was some sort of favoritism just because you're located here in Sacramento, but it seems, at least in the words of some people, that SMUD really needed to get created in order to make the electrical portion of the Central Valley Project make

sense in the first place. Do you agree with that? Or maybe you've never even heard that before. Maybe I'm way out in left field.

Estes: I've never heard that stated that way before. Certainly, with Western's headquarters here in Sacramento and SMUD, also, location means a lot, too. We work together closely. It's convenient to be able to work together. I don't think that one organization's existence is dependent on the other by any means.

Petershagen: There's another agency that I guess we should talk about a little bit, too, and that's the Northern California Power Agency [NCPA]. Now, when was that formed, do you remember?

Estes: I can't tell you the exact time.

Petershagen: You don't have to give me an exact date.

Estes: It was in the early '70s.

Petershagen: So, it roughly coincides with the formation of the Western Area Power Administration?

Estes: Before. It was before.

Petershagen: A few years before?

Estes: Yes, uh-huh.

Petershagen: And I think it's fair to say that N-C-P-A and WAPA have always had a very close relationship.

Northern California Power Agency

Estes: Yes, we have.

Petershagen: But if it came about before WAPA was put together, then obviously it's not correct to say that it was really formed just to work with WAPA. (Estes: No.) It was formed to represent those utility customers that cared to join with *whoever* they were buying power from.

Estes: That's correct.

Petershagen: I know that N-C-P-A does some duplication of WAPA kind of efforts, too, in power procurement for example, and in offering training classes and consultants and that sort of thing to their member agencies.

Estes: Yes, they do now.

Petershagen: Did any of that start to come about when you were the Area Manager for WAPA?

Estes: It was pretty much after I'd left WAPA that N-C-P-A really developed organizationally. They were an organization earlier, but not to the extent that they would supply assistance to the different cities. They weren't as well organized as they are now.

Petershagen: What was their original "function," so to speak, in your perception?

Estes: To work together to acquire power from whatever sources they might be able to get it from.

Petershagen: So as a more powerful kind of a marketing tool, or as a lobbying agency?

Estes: Well, originally, a marketing tool–later, to some degree, a lobbying organization.

Petershagen: I think it's fair to say that they've gotten bigger over the years, and I guess while you were the area manager, they were just kind of getting their feet wet.

Estes: There were eleven cities and one R-E-A [Rural Electrification Agency] that

comprised the original group.

Petershagen: We don't have many R-E-As in California. (Estes: That's correct.) What's the reason for that?

Estes: I can't answer that.

Petershagen: Okay. That's certainly a fair answer. In dealing as the area manager where does, in your perception, N-C-P-A come into the picture? You have this seller-to-customer relationship with the individual utility districts, and then you have N-C-P-A as another organization to deal with.

Estes: We dealt with N-C-P-A in a cooperative way. We dealt directly with the cities in negotiating contracts with them to supply their power. The power was wheeled by P-G&E. N-C-P-A worked with consultants–the R-W Beck Corporation in the Northwest, other consulting agencies–to determine studies that might be sources of additional power for them.

Preference Customers

Petershagen: Now, the customer agencies that buy power from the Western Area Power

Administration or from the Bureau of Reclamation, as it was originally, are referred to as "preference customers." (Estes: That's correct.) Can you explain that term to us? What's the preference?

Estes: The preference is to public organizations–public utilities, municipalities–that own their own distribution facilities, customers that are within the area of the origin of the water.

Petershagen: And I think those origin-related agencies, they often refer to themselves as "first preference," meaning they even have a preference over the other preference customers. (Estes: That's correct.) There's another group, though, of customer agencies that I think is often overlooked and that is the military installations and other federal government installations, I think, are the people that have the *real* first preference, are they not?

Estes: Yes, they are preference customers–right, the first preference. Several of these organizations, Mather Air Force Base, Sharpe [U. S. Army] Depot, naval supply depots–that type of organization–are first preference customers.

Petershagen: So, whoever from those organizations is responsible for the buying of power and meeting that sort of requirements would have the same sort of presence in your office when you were the area manager then as the General Manager at SMUD, (Estes: That's correct.) or some similar relationship existed, correct?

Estes: That's right.

Petershagen: Were there ever times that it all looked too big for you? As you look back on your experiences, especially at Western, that you thought, "Well, maybe we made the wrong decision here," or "Maybe we're not going to be able to meet the demand of all these customers"?

Estes: No, I've never felt that way.

Petershagen: I think I see on your face and hear in your answer that anything along that line was just another professional challenge, correct?

Estes: It was a challenge, right. We were in the business by the time we organized Western. We were in the business of marketing and delivering power. We've never looked at it as being more problem than we had sources

available for.

Petershagen: Some of us think that along with being first preference customers, that because we "own the water"–and I say that in quotes–we should only be paying a hydroelectric rate, rather than paying for any sort of a coal-fired or other, perhaps more expensive, sort of a power. How would you respond to that?

Estes: Well, first of all, we knew that we had to have a rate sufficient to repay the cost of the power, the cost of the generating facilities and the transmission facilities. We never tried to develop a rate that was so low that we would be unable to meet the overall costs. The law would not allow us to do that. To set the rate as high as the traffic would bear was not the way to go. I felt that if we could deliver power to these preference customers at a rate that was reasonable to them and repay the facilities that was as high a rate as we would want to go.

Petershagen: So, is it fair to say that then that was the "Estes Philosophy of Power Marketing" or, at least, of rate setting?

Estes: (chuckles) I think so.

Petershagen: And I think, from conversations that I've had with Dave Coleman, that that's also the "Coleman Philosophy," so I think it's been handed on from manager to manager.

David Coleman

Estes: I think Dave feels the same way.

Petershagen: Was Dave the next person in line after you? There've been other Area Managers or not?

Estes: No, Dave was my successor.

Petershagen: Dave *is* your immediate successor?

Estes: Yes. Now I think Jim Feider is presently Dave's successor in that position.

Petershagen: So, Dave Coleman, then, has had that job for almost twenty years? Or is my math wrong?

Estes: No, I think it's more like ten years, ten to twelve. Let's see, I retired in 1980–about fourteen years.

Petershagen: Yeah, okay. So, he has been there quite a

while.

Estes: He has, and done a very nice job, very good job.

Petershagen: Certainly, no argument there. You must have had some say in the choice of him as your successor.

Estes: Not really. I think that Bob McFail and Bill Claggett pretty much agreed . . . Dave apparently applied for my job when he knew that I was retiring, and he was chosen -- a good choice. He was the Assistant Regional Director in Amarillo and came up. I stayed on for about three months so that he could "get his feet on the ground," so to speak, in the job and has done a beautiful job since then.

Petershagen: So, his selection was really a Denver and Washington decision.

Estes: Yes. He was the Manager of the Operations Office with the Bureau before he went to Texas and so was well-experienced and well-educated.

Petershagen: In organizations such as this, be it WAPA or the Bureau of Reclamation, quite often you

can point to somebody that was a mentor to you–somebody that helped your career–a particular supervisor or somebody that you might consider a mentor. Could you name one or two individuals that might have filled that role for you?

Estes: I guess to some degree it would be George Fleming. He was the head of the Power Division in the latter part of my work with the Bureau, up until his retirement. I pretty much looked up to him as being the knowledgeable person in the power aspects of the Bureau.

Petershagen: And that might be a good place to stop this tape.

END SIDE B, TAPE 1. JUNE 10, 1994.
BEGIN SIDE A, TAPE 2. JUNE 16, 1994.

Petershagen: Gordon, before we go any further, I want to make sure we cover a couple of administrative requirements, and one is to make sure that you acknowledge that you understand we are tape recording this interview.

Estes: Yes.

Petershagen: And that you understand the terms and conditions of the Deed of Gift, whereby this becomes the property of the United States.

Estes: I do.

Repayment Period

Petershagen: Thank you very much. Since the first tape, you've mentioned to me that your description of the repayment period on the power facilities was somewhat erroneous and you wanted to correct that, so I want to give you that opportunity to do that right now.

Estes: Alright. The first tape that we made, I indicated that the repayment period of the project was one hundred years. This was not correct. The repayment period is authorized as fifty years after the addition of the last major power facility. This means that the repayment of the power investment could extend for possibly as much as one hundred years. The last repayment studies that we made while I was still working with the Bureau was extended through the year 2025 or along in that period. That would be almost seventy-five years after the first facility went in. I understand now that the

repayment period is based on the addition of some transmission facilities in 1998, and the repayment period would run fifty years after that addition to the facilities–to 2048. This would mean that some of the first facilities that went in, for instance Shasta Powerplant in about 1945, would have operated at that time over a hundred years, and this is because there's an allowance made for replacement, as well as . . . (tape turned off and on)

Petershagen: Gordon, we had that interruption with the telephone, so we had to stop the tape there, but can you continue your thoughts now?

Estes: Yes, the facilities that would operate over one hundred years, for instance, in the case of Shasta Powerplant, allowance is made in the repayment for operation, maintenance, and replacement of facilities. This assumes that the facilities will be in perfect operating condition for the full length of the repayment period. This particular problem has been discussed thoroughly with the Washington Office, and there's some belief that this is unrealistic to expect the operation of some of the facilities in excess of one hundred years. But that is the way that the repayment studies are run.

Petershagen: Now, let's try this again because I don't really understand it just because it's so complex. When I add a facility, such as this supposed last one in 1998, then I don't go back and redo the whole repayment studies–or do I?

Estes: You add onto the existing repayment studies, to make fifty years after the last facility is added. It's my understanding that the present repayment period runs through the year 2048 because a facility would be added in 1998.

Petershagen: I see. Then there would be a surplus generated over what was in the original rate studies because of this time extension, and that's what goes to pay for replacement of deteriorated components, that sort of thing?

Estes: Not only that, anything in excess of that would go to subsidize the irrigation function of the project.

Petershagen: And that's where the subsidy component comes in?

Estes: That's correct.

Petershagen: I see. Okay, I think we've got that all

cleared up. Is there anything else you want to say by way of explaining the difference between the one hundred years and the fifty years?

Estes: No, I think that corrects the original statement that the repayment period was one hundred years.

Petershagen: Okay, and just one more question: When you say, "the power facilities," that includes everything involved in generation and transmission, correct? (Estes: That's correct.) It could be a switchyard. It could be rewinding a generator.

Estes: Exactly, right.

Petershagen: We closed the last tape with a discussion of people that may have been mentors to your career, or people that you respected within the Bureau, anyhow. You mentioned George Fleming. (Estes: Yes.) Is there anyone else that you might point to that sort of filled that role?

Estes: I think he was the main . . . objective.

Facility Naming

Petershagen: That leads me to a question that's really unrelated, but I'm going to ask you if you know how the Bureau goes about selecting the names for its facilities. Was there ever any policy established? And the reason for my question is, some are named after areas. For example, the name for Shasta got changed–there's all sorts of references to that being the Kennett Dam from the town of Kennett, for the longest time–and then all of a sudden it becomes Shasta. But some of the facilities are named after people–for example, the Carr Powerhouse at Whiskeytown. (Estes: Yes.) It doesn't seem to follow any special pattern.

Estes: I have never heard that there was a policy for establishing names. It doesn't seem to follow any particular plan or policy in establishing names–political or towns, areas, that sort of thing.

Petershagen: The reason I brought that up, in conjunction with your mention of George Fleming, it seems that everybody I talk to just really respects this man, and if there was ever to get any sort of a power facility named by people that worked for him within the Bureau, I think the George Fleming Powerhouse, or George Fleming

Transmission Line–whatever it might be–that would be number one on the list.

Estes: Would have been very appropriate, right.

Petershagen: Okay, thank you. Let me ask another question that's somewhat related to that, and that is that the Bureau placed the name of Clair Engle Lake on what Trinity County residents refer to as Trinity Lake. Do you recall when you were working in the Bureau, and then of course at Western, how you and all the government employees referred to it? Was it Clair Engle Lake, or was it Trinity Lake in your common conversation?

Estes: It was always Trinity Lake. I don't recall ever hearing any of the Bureau people refer to it as Clair Engle Lake.

Petershagen: And I think Trinity Lake really was the name the Bureau gave to it to start with, and then it was renamed later.

Estes: Originally, yes.

Reclamation's Management Style

Petershagen: Well, let me take you totally away from that

subject, and we'll shift gears altogether, then. The Bureau's style of management has been described to me by a number of people as almost military at the time that you went to work for it–very hierarchical, everybody knew exactly who the boss was and you did what the boss said. (Estes: Pretty much so.) How did that play out in your day-to-day activities? Does that mean you got to work at a certain time, you worked until lunchtime, and you went home at a certain time, almost like the whistle blows at a certain time and everyone starts work?

Estes: Back in the '40s and '50s–late '40s and early '50s–that was the situation. We pretty much operated on a "military," you might say, hierarchy, and a time schedule normal to most businesses at that time.

Petershagen: And everybody, I'm assuming, came to work at the same time in the morning? (Estes: That's correct.) And everybody went home at exactly the same time.

Estes: Yes. There were a few times when you'd work over and things like that, but basically it was a nine-to-five operation, and we all worked the same way.

Petershagen: Over the years, that began to change, and you probably saw flex-time kind of things come in? (Estes: Flex time came in.) You may even have brought some of this in as you got to higher positions and became a manager. (Estes: That's correct, yes.) When did you see this sort of a change start to happen?

Estes: Oh, along about in the '70s, thereabouts, we went into flex-time in our particular office– varied the hours and tried to work pretty much in cooperation with other parts of the Bureau. Our flex time was such that the management kept hours that would allow them to operate closely with the other offices, the Washington office, for instance.

Petershagen: I see. Is there a particular Director that might have brought some of this in that you can identify? Or was it just more gradual on a continuous kind of a phase-in?

Estes: I think it developed pretty much with the development of the area and the cities. The traffic problems and so forth were a function of flex time, changes in hours. Progress forced us into some changes. This was pretty much during the early [Robert J.] Pafford administration when Pafford was the

Regional Director here in Sacramento.

Petershagen: Were there any big changes in the Bureau's management style that might have really caused an upset, maybe everybody was talking about for a couple of weeks?

Estes: Not that I'm aware of.

Petershagen: More gradual kinds of things?

Estes: It was pretty much a gradual change.

Supervisory Training

Petershagen: Now, you started out as a draftsperson–what we used to call a draftsman, I think. (chuckles) (Estes: That's correct.)–and worked your way up to a fairly high position in this organization and Western. When you got your first supervisory job, did you feel that you'd been adequately trained for that?

Estes: I think that I was trained well enough to take the positions as they came along. I would have preferred to finish my degree work at Stanford, but I had financial problems that I had to look at at that time.

Petershagen: Your training to take on bigger responsibilities was largely under the tutelage of Fleming.

Estes: Pretty much under Fleming and people that worked with him, yes.

Petershagen: And it was largely following his example? Or did you have formal classes in supervision and management?

Estes: Oh, I had training put on by the Bureau for management areas. I took that training, of course, and got the experience under Fleming, watching him operate.

Petershagen: Well, he must have been a tremendous teacher, because there are a number of you that are his protégés that have achieved fairly high offices in the power business.

Estes: Very knowledgeable man.

Petershagen: Now, when you first went to work for the Bureau, I'm sure there were no women engineers. Is that safe to say?

Women Engineers

Estes: When I first went to work for them, I can't

recall any women engineers. Later on in the years with the Bureau, there were women engineers, very capable ones.

Petershagen: Can you recall maybe when you saw the first one? Maybe not necessarily *the* exact first one, but when you started seeing women fill what we call nontraditional roles in the work force?

Estes: It was along toward the late '70s, pretty close to before I retired. I think there was one woman engineer in the Boulder City office, and who later went to Washington, a very capable lady.

Petershagen: So, by this time you had gone through supervisory positions and you were by now in management positions. Did the Bureau do anything to try to prepare you for this new kind of a work force you were going to have to deal with?

Estes: I don't recall any particular training in that regard. The women that were in those positions were capable women, very good. But there were few. There weren't very many.

Petershagen: So, from your point of view, it was just

accepting new workers on the job (Estes: That's right, yes.) without regard to the fact that they were women, necessarily.

Estes: That's correct.

Selecting Personnel for WAPA

Petershagen: When the Western Area Power Administration was put together, how did you make all your personnel selections and your personnel allotments? How did you determine how many positions you were going to have, how many F-T-Es [full-time equivalents] you were going to have, for example? Did they call them F-T-Es then?

Estes: No. (laughter) Your personnel enrollment was pretty much agreed to by the Administrator in the central office in Golden, Colorado. Working with each Area, they determined together with the Administrator, determined what personnel you needed for certain areas for certain jobs. Then we went out and hired them by advertisement of the position. It was a cooperative arrangement with the headquarters office.

Petershagen: There would be some Reclamation

employees, just as you did, (Estes: That would apply for the job.) went to these new jobs in Western. (Estes: Yes.) That was on a competitive basis by applying for the job and being selected.

Estes: That's correct, yes. After I was appointed to the position of Area Manager by the headquarters office–the administrator was Bob McFail–and all subsequent hiring in Western was cooperative with the headquarters office and by advertisement.

Petershagen: So, there was no move of just taking, say, three dozen people that worked in a particular power group at Reclamation and just say, "Hey you guys . . ."

Estes: Oh, yes. No, don't misunderstand.

Petershagen: Okay, a misunderstanding on my part.

Estes: The whole Power Division that was with the Bureau when the Energy Department developed the Western Area Power Administration went over *to* Western. Then subsequent to that, any additional personnel needed was by advertisement of the position by the area offices.

Petershagen: I see. Okay, so I was jumping to the wrong conclusion there. Now, the actual operation of the generating facilities remains with the Bureau of Reclamation? (Estes: That's correct, yes.) So that any sort of control room staff or anything like that at Shasta, for example, those people still work for the Bureau of Reclamation.

Estes: They did when I was still with Western.

Petershagen: And then people such as dispatchers, maybe farther down the line from that, then would work for Western?

Estes: No, the dispatch work, when I was with Western, was handled by the Bureau.

Petershagen: Still all of that was handled by the Bureau, okay. And I'm sure that in the time that you were leaving the Bureau and taking this new position with Western, by that time there were probably no women at all, or very few that had worked their way into that sort of a job, correct–into dispatching or any kind of control room job?

Estes: Not that I know of no.

Petershagen: My own feeling is that would *really* be a

nontraditional role for a woman to be involved in that line of work.

Estes: Yes.

Environmental Groups

Petershagen: I noticed within the last couple of weeks that there seems to have grown among environmental groups ways of playing the power community and the water community against each other in some aspects. For example, if I'm going to cool the water in the Sacramento River for the salmon, to keep the fish people happy, the way that that's being done right now is by taking the water from the bottom of the reservoir (Estes: From lower parts of the reservoir, right.) which then bypasses the penstocks and the whole generating facility and gives me a greater outflow into the river that's not going to be used for hydrogeneration. Is there a way of fixing that in your mind? Obviously, we can't just lower the place where we're taking the water out, or we're going to lose the fall of the water if we do that.

Estes: I'm not familiar with just how they handle it. I'm not sure offhand, that there would be a

way of correcting that type of operation.

Petershagen: Now, when something like that happens today, where a new mode of operation is imposed on the Bureau–or on Western for that matter–by some consideration like that, then does that trigger a mechanism, then, of going back and looking at studies like 2948-A and repayment schedules and all that kind of stuff? Or is it just kind of taken in the course of normal events? "Well, this is something new we have to do, and we'll just live with it."

Estes: My personal feeling is that it would be just that. It would be something that they'd have to live with.

Petershagen: I guess what I'm getting at is sometimes in an agency or a corporation change can almost create crisis conditions or emergency conditions. Do you recall that anything like that may have happened while you were in this business?

Estes: Not really while I was still working. Obviously, the drought conditions changed and would require some kind of modification in the contract with P-G&E in current years. I've been away from it

before they got away from the operation of facilities–before these current drought conditions have taken place–but it's obvious that there must be some work with P-G&E on what the dependable capacity of the system would be. But this has all taken place subsequent to my retirement.

Petershagen: Almost every question I've asked you about change or to try to impose any sort of a crisis situation, your response has, universally I think, been that it just seems to be another professional challenge–it's what you have to do when you go to work today–and things where other people might get very excited, you just seem to take these things in stride. Is it fair to say that that is the Estes Management Style?

Personal Management Style

Estes: I would think that that would be fair to say.

Petershagen: Okay, then if I turn the tables on you a little bit and ask you to describe your management style, how would you go about that?

Estes: Well, I think that my theory is let the people that are working for you do their job, and

don't try to change their ways of doing their job. I think you can get better results from people that you don't interfere with than you do when you try to dictate how you'd like to change their ways. I think I pretty well operated that way while I was with the Bureau. You work *with* people rather than try to force them to do it your way. I think the results are better.

Petershagen: I see. And I don't want to take anything away from you when I ask this, but would you attribute that sort of development of that sort of a style to George Fleming once again? Was that his style?

Estes: Well . . .

Petershagen: I realize, as we learn, we take a little bit from here and a little bit from there.

Estes: It wasn't specifically his style, but he worked very well with other people. He expected them to do their job and didn't try to force any changes on you. So, to some degree, that was the way he operated.

Petershagen: Now, I'll turn the tables and go in a little bit different direction here once again. Dave Coleman described the Bureau as being a

very family-oriented organization. His perception of the Bureau was that it was very family oriented. Do you agree with that? Did you see the Bureau being very supportive of families and so forth?

Estes: To some degree, but not probably as much as Dave has seen it.

Petershagen: And I'm just going to guess that some of the difference would come in, I think–because in the number of moves he had to make, I think–Dave was far more dependent on the Bureau, on meeting new people, and the Bureau to help him make adjustments, whereas you were one of those lucky people that managed to stay here in Sacramento.

Estes: Precisely.

Petershagen: I would think that you find more community interests and that sort of thing–things away from the Bureau, I guess–and not see it so much with the sense of "home" that somebody that had to move a lot did. Is that fair?

Estes: I think that's correctly stated, right.

Petershagen: With that, I think we'd better stop the tape here and turn it over.

END SIDE A, TAPE 2. JUNE 16, 1994
BEGIN SIDE B, TAPE 2. JUNE 16, 1994

Petershagen: Gordon, I think we've reached the end of my list of questions for you. So, I'll just ask you if there's anything else you want to say, anything you think needs to be added?

Estes: I really think that we've covered pretty well the power aspects of the Central Valley Project.

Petershagen: Okay, let me finish then by saying thank you very much. And once again, you acknowledge that you are making a gift of this interview to the government of the United States.

Estes: I am.

Petershagen: That it will be going to the National Archives.

Estes: Yes.

Petershagen: Okay, thank you very much.

END SIDE B, TAPE 2. JUNE 16, 1994
END OF INTERVIEW