

ORAL HISTORY INTERVIEWS
LARRY D. MORTON
Volume II



BUREAU OF RECLAMATION
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ORAL HISTORY INTERVIEWS

LARRY D. MORTON

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Bureau of Reclamation

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BEGIN TAPE 1, SIDE 1, JUNE 17, 1996.

Storey: [This is Brit Allan Storey], Senior Historian, of the Bureau of Reclamation, interviewing Larry Morton, the Assistant Area Manager of the Phoenix area office, on June 17, 1996, in his office at about one o'clock in the afternoon. This is tape one.

Last time, we mentioned NEPA when we were talking. Back in '69, when NEPA was first passed, and then beginning in '70 as it was implemented. We had the Tucson planning conference, but was Reclamation recognizing that NEPA was going to change the way it did business significantly, or was the Tucson conference in response to other things?

*Tucson planning
conference in 1970*

*Objectives of the Tucson
planning conference*

Morton: No, I think the Tucson planning conference was in response primarily to a desire to generate new projects in a shorter time period. The realization that it was taking a long time, twenty, thirty, forty years, between inception and authorization for a new Reclamation project, and even though there was \$4 or \$5 billion worth of backlog of authorized, but yet unfunded or unconstructed projects within Reclamation, there was an emphasis on getting quality projects in the pipeline sooner and get them authorized sooner.

I don't think that the requirements of NEPA had really sunk in at that moment in time. I think that conference was in April or May. It seems to me it was in the spring of the year, and NEPA was five months old or something like that, four or five months. I don't know that any of the Reclamation organizations had yet even prepared an environmental impact statement at that point in time, and so the realization of the administrative burden and the public involvement burden

associated with NEPA probably had no bearing on the decisions and processes that went on at that planning conference.

Storey: A few years later, let's see, you were working on Zuñi and Prescott. Prescott was at that time.

Morton: Right.

Storey: Zuñi was also pretty much at that time.

Morton: Actually, I think we wrapped up Zuñi late in '69, it seems to me.

Storey: So let me start at this question differently. When did you begin to see NEPA as a big influence on what was going on?

Morton: I think that the first observation or acknowledgment that I had of NEPA was probably associated with the Central Arizona Project and the processing of the master repayment contract. It had been concluded that that was a major milestone decision and, of course, that NEPA would apply to that decision to execute the master repayment contract.

When NEPA began to affect Reclamation

We had discussed earlier the overall programmatic environmental statement associated with CAP, and I think that was the first real experience that I had with NEPA was associated with that. Prior to that time, I know that the office had processed a couple of NEPA issues, but, I think I mentioned earlier, they were like two- or three- or four-page documents. In one paragraph they would address the various components of NEPA. They were relatively small, however.

I think one of them had to do with a loan program that we had on the Upper Gila near Safford, Arizona. Another one had to do with the

relinquishment of some Reclamation withdrawn land for the Salt River Project, and it primarily had to stand the NEPA test because of the potential for hazardous materials. The land that was being transferred had been leased to a cattle feeding operation and to a tallow plant, and so there were concerns about buried wastes and animal byproducts that might come back for the Federal Government to clean up. And so we wanted to go to the public and make the public aware that if we transferred these lands, in one instance they were to the city of Phoenix for expansion of Sky Harbor Airport, and in the other instance it was to the city of Tempe for development of an open-space, still not a park. It's just raw open space, but it's designated in the future to be a park. It has sat there for over twenty-five years, and the city of Tempe has done nothing with it in the way of development.

But relinquishment of those two parcels, I think, were done primarily to limit the government's future liability, because we had no real good handle on what the lessees had done with those lands. In other words, we would go in and inspect those lands to ensure that they were in compliance with the lease. We'd inspect them once a year, but we had no idea if there weren't dead cows, for example, buried under twenty feet of dirt that one day the city, in developing the airport, or Tempe, in developing a park, might not uncover. We wanted to make sure that everybody was aware of the nature of the land exchange or the land relinquishment that was going on. But once again, they probably didn't exceed three or four or five pages. They were not the early encyclopaedic-type environmental impact statement that many agencies put out.

Storey: Yeah. Did we talk about your role in the master environmental statement? Did you have a role?

Morton: Yeah, I had a role in the context of--not in the environmental assessment process, per se, but in describing the nature of the proposed actions. That's one of the major chapter headings. Since I had a working knowledge of Charleston and Buttes Dam, Orme Dam, the aqueduct system, I worked primarily on, and having worked in the reports part of the organization, I was a logical candidate to at least document what the nature of the facilities were. So I wrote those kinds of chapters or subchapters.

Role in the master environmental impact statement for CAP

Storey: Now, did you do that out of whole cloth or did you do that on the basis of what other people provided to you?

Morton: I guess as far as the written material was concerned, it came from prior planning reports, the '64 report, the '65 federal power arrangements, the brown book report, and then some additional writings based on later information on what had happened between '65 and '71 or so at the time we were actually writing those chapters.

Storey: Do you remember when we published that?

Morton: Well, it was final just before the execution of the contract in '72. It was the decision document to go ahead and execute the master repayment contract.

Storey: And then out of that came a series of site-specific environmental documents.

Morton: Right.

Storey: I believe you've listed those, but we haven't talked about those yet. Do you remember which one came first?

Morton: The Havasu Pumping Plant, Buckskin Mountains Tunnel and intake channel was the first one of the series, and then we moved on to the Granite Reef Aqueduct, which is now the Hayden-Rhodes Aqueduct. It's been renamed.

Havasu Pumping Plant site-specific environmental statement

Granite Reef site-specific environmental statement

Storey: Were you involved in the Havasu-Buckskin Tunnel environmental statement?

Morton: I worked at or around all of those first statements--Havasu, Granite Reef, Orme, Salt-Gila. I was working on Buttes at the time I left the operations organization and joined the environmental staff in '76.

Storey: That would have been a fifth one, is that right?

Morton: Buttes would have followed Orme. I'm not sure if that had been the--yeah, that would have been probably the fifth one. The disaster with Orme shoved Buttes way back on the back burner.

Storey: Were these going on at the same time? Were they going on consecutively? How did that work?

Morton: The initial construction was programmed for Havasu, with the intake channel and the Buckskin Mountains Tunnel being the first two major contracts. The desire to build the Reach 11 flood retarding structure, because it provided flood control for the city of Scottsdale, also was pretty high on the list. So I would have to say that the Havasu and Granite Reef were somewhat concurrent in that the Havasu final had yet to be

Reach 11 scheduling

published and the Granite Reef draft was probably out for public review prior to the finalization of the Havasu because of the construction, the desire for that sequencing of the construction.

Orme, because of the major staff requirements, there was some preliminary work being done prior to the finalization of the Granite Reef statement, but I don't think we were in a very intensive Orme mode in terms of the EIS. There was a lot of data to develop around Orme, so there were other parts of the organization out there that were developing hydrologic data, land resource data, land management data, land acquisition information, because one of the major social impacts was associated with the Fort McDowell Indian Reservation. There was some updating of the engineering information, flood control operations. The hydrologic data was being looked at very closely in terms of the water yield from the Salt and Verde systems, as well as regulating of Colorado River flows. We were getting more detailed information concerning how best to divert Colorado River water into Orme, whether to come in at a lower elevation and pump into the reservoir or to come in at a higher elevation, to put that pump lift in one of the in-line Granite Reef Aqueduct plants so that we could come in at a higher elevation and divert into the reservoir by gravity.

So a lot of information was being collected around Orme prior to the real fabrication or preparation of the documents. So I'd have to say that we weren't in a position to really move forward with the statement itself until we pretty much finalized the Granite Reef Aqueduct statement, which I think was early in '74, probably, that we finalized the Granite Reef statement.

*Developing information
about Orme for the
environmental statement*

Storey: These were the years, these were the learning period for NEPA. What was it like being in the middle of that learning curve as Reclamation found out what NEPA was all about, as the American public found out the way NEPA could be used, and so on? What was that like?

Morton: Well, I think that we went from a relative--what's the word I'm grasping for? It was kind of like, here's another impediment that we have to deal with, and we'll deal with it the only way we know how, and that's to document what we feel to be the effects of the undertaking.

Generally, the effects, as we looked at them then, were fairly minimal, as compared to how you might look at them today. The loss of 100 acres of riparian habitat in the sixties or seventies, early seventies, was not considered to be of major significance. Today, when we've realized the true value of riparian habitat, 100 acres of riparian habitat in the Southwestern deserts of the United States can be a very significant loss of biological diversity or biological--what's the word I'm grasping for here? Anyhow, the bottom line is that --

Storey: Well, of habitat, really.

Morton: Habitat or species diversity, or any number of endangered species themselves that could constitute an incidental take of an endangered species that is basically a violation of the Endangered Species Act.

At that time, I think we still had our development hat on. We were still looking for economic solutions to further the needs or to satisfy the needs of man, and whether that need

How Reclamation reacted to NEPA

How environmental values have changed

was a water resource need or a need for communication or a need for transportation or whatever it was, that need or desire to satisfy that need took precedence over all others, I think, at that time.

It was only after we were able to bring staff on board who had been trained in the environmental arts, if you will, who had a background in archeology or anthropology or biology or the social well being of Native Americans or whatever. Once we had those people on our staff and had some in total debates and discussions and received a little education, the engineers, the traditionalists in Reclamation realized that we were dealing with a whole new mind-set, and that took a couple of years. Probably by '75 or '76, five or six years down the road, our environmental staff had increased from one civil engineer and one soil scientist to six or eight people who had a broad range of environmental backgrounds. They kind of became the collective conscience of the rest of the staff, and they pointed out things that, due to our lack of experience or background in those fields, [we] had overlooked or just didn't have the knowledge. So I think we just needed to become educated, become familiar with what was going on.

And then, of course, the attorneys, they came in and pointed out new case laws that were being established over time and pointed out that we could no longer overlook these things. We probably overreacted somewhat to their guidance in that rather than focusing on the salient impacts of the undertaking, we tried to just cover all bases to make ourselves litigation-proof. That produced documents of a thousand pages or more, which was kind of ridiculous, too, but that was how we reacted at the time.

Bringing on professional staff to deal with environmental issues

How NEPA case law affected environmental statements

Storey: Did part of our learning curve here on the Central Arizona Project involve any litigation?

Morton: I think it was later that we first got into litigation. We were threatened, of course, with litigation on Orme. The Secretary's Water Projects Review and President Carter's decisions in the early 1977 eliminated that conflict initially. But the water allocation decisions of Secretary Andrus resulted in one lawsuit, *Babbitt v. Andrus*, which focused on Secretary Andrus' initial allocation of water to the central Arizona Indian tribes.

Lawsuits and CAP

Storey: That was in '80, was it?

Morton: I believe so, yeah. The Tucson Aqueduct, Phase B, I believe it was, we had a lawsuit over the Tucson Aqueduct. Then the Plan 6 lawsuit with regard to Cliff Dam was a third one. That was '86, I guess. I think we've had three. And the Tucson suit, the United States prevailed in the Tucson suit, but then the plaintiffs appealed, so, in fact, we went through the Tucson lawsuit twice. There have been a couple of other ones, but they tended to be more procedural. We were sued on another water allocation issue, but it was not on NEPA grounds. It was on the Secretary's procedure on--I can't think of the name of the act.

Storey: I want to say Executive Procedures Act, but I don't think that's right.

Morton: That's not quite right, but that's the act. I can't think of it. But anyhow, we were sued on non-NEPA grounds, but administrative procedures. I guess that's what it is, Administrative Procedures Act.

Storey: So there wasn't anything in the early years?

Morton: Not until the hue and cry about the '75 Orme draft statement. That was the first indication of any real major concern. The Salt-Gila Aqueduct was almost without concern. Maybe by that time we'd learned to write a good environmental impact statement, but I think the Salt-Gila was the first one that went through without any adverse comment.

We'd have public hearings and three or four people would show up, and generally it was like a landowner that was within several hundred feet of the canal and he was very much concerned that we had not yet described specifically what was going to happen to his land, how much money was he going to get paid, or were we actually going to go through his land or was he going to be butting right up next to the canal. Ofttimes at that instant we were lucky to know the centerline of the canal by a couple hundred feet either way, and whether that individual landowner would be directly affected or secondarily affected was kind of a problematical analysis at that point in time.

On many features the public wasn't really interested in the environmental issues

Storey: How did you participate in these environmental statements?

Morton: By 1977, I was chief of the Environmental Division, and so I was the person that was responsible for producing the environmental statement. I think I took that job late in '77, and I was the environmental officer for the project for about six years, until about 1983, I think.

Prior to that time, up until 1976 I had worked in the Operations Division, and early on, at least on the first two statements, my role was primarily writing the chapters that pertained to the

Alternative locations studied for diversion of Colorado River water from the river

proposed action and developing alternatives to the proposed action. In the case of the Havasu Pumping Plant, we primarily documented all the studies that led up to the decision to divert the Colorado River water from Lake Havasu. There were studies that had been done, alternatives had been considered in the mid-forties that involved diversion from the Colorado River at a location about where Glen Canyon Dam is. There's an alternative to divert from the Marble Canyon dam site on the Colorado River and also from the Bridge Canyon dam site. The Glen Canyon and Bridge Canyon sites involved very long tunnels. In the Bridge Canyon proposal, it would have diverted water to the Bill Williams drainage basin, and then the diversion would have been made off the Bill Williams River and basically followed the alignment of the Granite Reef Aqueduct east of the Bill Williams River. In the case of Glen Canyon, there was a long tunnel that diverted water by gravity into the Verde River drainage, and then the water would flow down the Verde River and be picked up by CAP at or near the Orme dam site.

Those were the four principal alternatives that we discussed at length in the Havasu environmental impact statement. Of course, I worked on dredging up all that old information and putting it in current terms and the types of impacts that would result from that. In the case of both of the tunnel proposals, there would have been a large amount of spoil material. A number of headings would have been drilled to the invert of the tunnel alignment. We would have had a spoil I don't remember now, but literally hundreds of thousands of yards of tunnel--excavation. The impacts on nearby canyons had to be documented, and so we identified where would have been

reasonable for these headings to be located and in turn the amount of material that would have to be deposited, and then the biologists and the cultural, the archaeologists, anthropologists would examine what those impacts would be as a result of that physical terrain disturbance.

So our job was basically to define what the alternatives were, how we would build it, what the physical impacts of building it would be--new roads, new towns in some instances. You'd have 500 people, workmen. We had to make some assumptions on what that would mean in terms of nearby towns, in terms of social impact, infrastructure impacts, trailer parks, water, sewer, schools, that type of thing. That was basically the role I played, at least, on the Granite Reef and Havasu EIS's was one primarily focused on the physical construction and how that played back in terms of effects on the natural environment.

Later, when we focused on Orme and Buttes, I was primarily involved in the hydrologic aspects, the water operations aspects. There were other people who were more current on the actual design for those facilities, and by that time we had a construction staff that was more familiar with the physical types of impacts that would occur as a result of construction, the office buildings and the--.

Storey: But they were telling you all along how the design was shaping up, where it would go, all that kind of stuff, and then you were verbalizing it for the environmental statement, is that right?

END OF SIDE 1, TAPE 1. JUNE 17, 1996.

BEGINNING OF SIDE 2, TAPE 1. JUNE 17, 1996.

Storey: Were there missteps in the communication between the people who were doing the planning

development and the people who were doing the environmental statement writing? How did you assure adequate back-and-forth communication there?

Morton: Like with anything, there's always miscommunications, but I thought we did a pretty good job of relating one to another. The staff that the Construction Engineer brought in were experienced in construction, but they were very poor in writing skills, so we usually--and I say this usually--would sit down on a weekly basis and the writing staff, the people in the operations and environmental organization, the former planning organization, the people who were left over from planning, would sit down with the engineers who were actually designing the various components, and we'd spend maybe one day a week just gaining an understanding, verbalizing with them what we understood that they intended to build. And then we'd convert that into written format, and the next week we'd ask them to confirm we had captured what they had told us.

I think we saw a lot of good communication back and forth. Every week or two weeks we would have a whole-day session and try and resolve any problems. Oftentimes, between one point and another--a big issue that we had with the Granite Reef Aqueduct was whether we were going to have four pumping plants or we were going to have five pumping plants. The designers were of a mind that while Havasu--we needed to overcome somewhere between 1,100 and 1,200 feet of head, and we knew from the location that had been established for the Buckskin Mountains tunnel, we knew exactly how much lift, how much head we had to have on the Havasu plant. There was a given elevation for the outlet

How the environmental and construction staffs coordinated their efforts

How design issues would affect development of environmental statements

of the tunnel on the south side of the Buckskin Mountains, and that was about seven miles away from the Havasu pumping plant. And we knew how much slope that the tunnel had to have to maintain the maximum velocity in the tunnel. So we knew exactly, within plus or minus two feet, of how much head we had to have in the Havasu pumping plant. It was 822 to 826 feet. That was the bottom line. That was not a question.

But coming into Phoenix, then the question was, do we build four relatively identical plants with approximately 100 foot of lift in each plant, 90 to 100 feet, and try and make those mirror images of one another, or is it better to have two plants that would be mirror images and a third plant that would be almost double that head. It became an economic analysis to determine, based on terrain and cost of construction, whether four identical plants would be cheaper than separate designs for two different types of plants. As it worked out, the best cost approach was to just match the Bouse and Little Harquahala plants and then make the Hassayampa plant about twice the head of the other two, as opposed to putting a fourth plant at the Bellemont [phonetic] Mountains. So early versions of the plan included a Bellemont Mountain plant. When we actually got around to construction, Bellemont Mountains disappeared.

Every week it seemed like you got a different slant on "well, it's better to do it this way," or "it's better to do it that way." That was a stumbling block for the Granite Reef statement. It took us a while to get by that analysis. It was basically a cost and engineering analysis. Anything that we did was feasible. It had all been done previously. We were not talking about any unique flow rates or any unique velocities or any previously undone types of technology. This was

all cut-and-dry technology. It was just a case of evaluating the types of construction that we would have to deal with and the costs of that type of construction, and it took a little while.

We had a similar situation on the Salt-Gila Aqueduct; basically, how big should we make the Salt-Gila Aqueduct? Should it be 1,800 second feet or 2,500, or should we try and put 3,000 in? If we don't put 3,000 in, should we put 3,000 in the hydraulics of the canal, but leave a unit out of the pumping out? Should we build a bay in the pumping plant for a spare unit and not put the unit in? How far do we go in terms of maximizing the capacity of the Salt-Gila Aqueduct? Because at that time, the total allocation of water, in terms of the entity to which it would be delivered, was still up in the air. We did not have good data as to how the state would allocate the non-Indian share of the project water. We were uncertain. We had some recommendations. We had discussed previously about my process with the Indian tribes in establishing recommendations for allocating 310,000 acre-feet, but we didn't have contracts. It wasn't cast in stone. It wasn't until 1980 that the contracts with the Indian tribes were signed.

So those kinds of decisions were kind of soft. They took some judgment. The Construction Engineer and his staff were definitely of the mode that bigger is better and it's always best to build the largest capacity you can, and if you don't use it, well, "it's just money," tended to be their philosophy. On the other hand, we knew that we had an appropriations ceiling we had to deal with. We knew that we had a repayment entity that was scrutinizing every penny that was spent. So we had to use some judgment and document our decisions accordingly.

There were always a few issues that were debated back and forth, but generally I'd have to say they weren't adverse environmental issues until you got to Orme Dam. The canals went where the canals had to go. They were limited by the terrain. And until we got to the Tucson Aqueduct. The Tucson Aqueduct sparked a lot of debate about location and environmental effects.

But I would have to say that the Havasu impact statement, the Granite Reef Aqueduct, and the Salt-Gila Aqueduct statements engendered, little, if any, controversy from an environmental perspective. I think that the people of Arizona, the national environmental organizations were pretty much convinced that the delivery of Colorado River water to central Arizona was going to happen, and the route for making that delivery was relatively insensitive. In other words, if you moved it north by a mile or south by a mile, in terms of the natural environment there was practically no difference in the impacts associated with the construction of those canals.

Reservoirs, on the other hand, were another issue. There was more significant environmental impacts associated with them, and I think that those individuals whose mind-set was to protect the natural environment focused primarily on our proposals both at Orme and, while it never was published, Buttes, as well.

Generally there weren't adverse environmental issues until Orme Dam was addressed

Reservoirs were more controversial than canal locations

Storey: There were no discussions between the planners and the environmental, the writers?

Morton: Well, there were two parts of the environmental staff. At one point in time, most of the former planners were working in our water operations division, and they were interpreting the plan, the alternatives and the plans that were coming from the Construction Engineer and his organization.

Once the planning organization ceased to exist, the actual formulation of where the canal should go and how big it should be became the responsibility of the Construction Engineer. They dealt primarily in terms of economics, how much does it cost, either unit cost or total cost. Very often they would look at unit cost for construction and not worry about O&M, because it doesn't matter, if you have to overcome 400 feet of head, you're going to use the same energy, or relatively the same energy, if it's in four plants or three plants. There's some scales of efficiency in terms of the energy, but the biggest component of O&M costs is your energy component, and obviously there's some fixed costs if you have to O&M four plants versus three plants. But the first cut was always, how much does this cost to build, and if it was substantially greater to build this plan or this alternative versus that alternative, you went with the cheaper one. You might not even look at the total cost in terms of both capital and O&M.

If there was a question or if it was a push between one plan versus the other, then O&M would enter into it and the division I worked in at that time would get involved in that process and try to point out the additional costs, the additional future costs associated with fifty years of operation and maintenance, and we'd use the present value analysis to assist us in making that decision.

Once we had arrayed a number of alternatives and come up with the preferred alternative, then we went to the environmental staff, the technical environmental part of the organization, the biologists, the water quality people, the land resource people, the archaeologists, and say, "Here's the plan. This is the cheapest and best

plan, from our perspective. Does it produce any impacts that are stoppers?"

Generally, at least in the case of the canals--at least until we got down to Tucson, and I'll tell you about Tucson later. But for the Havasu diversion, the Granite Reef, and the Salt-Gila Aqueducts, generally I think that they came back and said, "This plan doesn't produce any different impact, and when you compare this plan versus the no construction plan, the impacts are the same whether you chose alternate of A, B, C, or D. The real key to making the decision is, which of A, B, C, or D is the cheapest plan, because I can't differentiate on any environmental ground. I lose X sites or Y sites from a cultural resource perspective. I lose so many acres of upland habitat from this one or that one. But you're building basically the same prism. You're scarifying the land between the upstream toe of the O&M road to the downstream toe of the O&M road."

That was 180 to 250 feet, and whatever was in there in terms of environmental resource was going to be lost. But here in Arizona, you aren't talking much deviation in terms of those resources. The cultural resources were relatively sparse. You were dealing with desert upland habitat that had relatively little habitat or cover value for wildlife species. The loss of animals in the canal was going to occur whether it was two miles downstream or three miles upstream from this location. Generally, the mitigation efforts were going to be the same. You were going to fence the canal. You were going to put wildlife bridges across the canal. You were going to provide dirt cover on your overshoots so that the wildlife could walk across the overshoots. You were going to provide escape ramps in the plunge pools of the overshoots so that the wildlife could

walk back out. You were going to replace the dirt on the overshoots when floods came down and washed that off. So the bottom line was, generally speaking, the impacts were going to be just about the same.

Where you got into debate was when you got close to stream channels, and we were crossing all stream channels at right angles. We were running at right angles to the normal prevailing cross-drainage. So while we could adjust upstream or downstream, it was just a case of, after you had defined the general alignment, then you could go out and look for individual differentiation between each site, and you could generally make those adjustments in the field to miss--for example, you might have a seep that produced a wetland, and you wanted to go around the wetland, you wanted to preserve the wetland. You could move the canal a couple hundred feet downstream, and you'd miss the wetland. But we don't have five miles of wetland or riparian areas lying along these stream channels.

Similarly, you'd come into stream channels and the frequency and value of the cultural resource sites would be certainly a lot more important along stream channels. During prehistoric times, that's where the Native Americans located. They were highly dependent on stream channels.

When we came up through saddles, for example, of course we'd try to minimize the amount of cut or the amount of excavation we would have to make, so oftentimes we would either go around the toe of a mountain or we'd try to go through a saddle, and as you come into those types of places, they would be migration routes for wildlife, for example. The native animals didn't climb over the tops of mountains, either.

Stream channels and wetlands were areas where environmental issues were more sensitive

How construction might affect wildlife travel routes

They wanted to go around the toe of the mountain or through the saddle just like where we wanted to take the canal alignment.

Oftentimes we'd--well, not oftentimes, but on occasion we'd come upon petroglyphs or gardening areas where Native Americans had grown crops from time to time. They tended to be gathering places or hunting-types of places for the Native Americans. So we often had to provide special consideration and fence those areas off or we'd try to move the canal upslope or downslope so that we didn't damage those types of cultural and historical remains. But they tended to be very site-specific, and from a gross sense of 190 miles worth of canal, whether you were on one alignment or another alignment a mile or two miles away, the net impact was going to be just about the same on either alignment. So, those types of analyses did not enter into the final decision on location.

Cultural resources on the CAP

Storey: Did they ever begin to enter into the decision-making process that you had alternatives which were obviously better but more expensive, (Morton: Yes.) so that you had dissension within Reclamation about where the location should be? When did that kind of thing start?

Morton: That really started when we got farther south, other than with the reservoirs, when we were only talking about the canals. When we got into the Tucson Aqueduct phase, there were two phases, Phase A and Phase B. Phase A was intended to take water from the terminus of the Salt-Gila Aqueduct, which was, oh, about Picacho Reservoir. It shouldn't even say Picacho Reservoir. Picacho Reservoir is a facility of the San Carlos Irrigation Project. But in the Picacho area, south of Florence, Arizona, was where the

Controversy over the Tucson Aqueduct

Tucson Aqueduct was going to begin. It began at that location, and Phase A took the water down to the vicinity of Marana. So from Picacho to Marana, which is basically south central Pinal County into northern Pima County, there was a debate on whether the alignment should go to the east side of the Picacho Mountains or to the west side of the Picacho Mountains, and that debate was spurred by the desert tortoise and the habitat of the desert tortoise.

There was also a secondary concern expressed for the visual effects of the canal on the west side alignment. The canal was visible because of the scarring of the hillside along Newman Peak. Along Newman Peak would be visible from Interstate 10, and so there was a major debate on visual impacts.

But I think that the significant activity related to Phase A [of the] Tucson Aqueduct was the potential for impact on the desert tortoise, which at that time, or at least leading up to that time, was not yet on the endangered species list. It is now, but at that time the state of Arizona had it listed as a candidate species. The Fish and Wildlife Service did not recognize a unique status, although there was substantial concern for its status. They just had not yet promulgated the regulations that established the desert tortoise as an endangered species.

We took a lot of care in our analysis. We had a three-person team that worked over two years with attaching radios to desert tortoises to determine their home range, their migration patterns, their feeding habits, their nocturnal habits, to find their dens, and I think it was only-- as a matter of fact, one of the individuals wrote her master's thesis on that subject. But I think it was only as a result of the professional interaction with the whole biological community that had an

*Desert tortoise issues
along the Tucson
Aqueduct*

opportunity to observe what we had done that the controversy on whether we should go around the west side area [developed].

The west side area was obviously the less expensive. To go over to the east side of the Picacho Mountain range would have cost--I don't know that the capital cost was that much different, but you had to pump the water an additional 200 feet, and so the total cost, when you considered the additional energy that was involved, was significantly greater. So from a cost perspective and from a development perspective, I think we were of the opinion that the best plan was one along the west side of the Picacho Mountains as opposed to the east.

But there was a lot of concern raised about the desert tortoise, and I think that we had a lot of public involvement. We had a lot of peer review of our research on those desert tortoises. We had two independent contractors, one at ASU, one at the University of Arizona, plus our own staff, all who came up with the same answer, that if we stayed out of a specific area there along the toe of Newman Peak where the preponderance of the dens were located, if we provided tortoise fencing, and if we provided crossings along the canal, the migration--we did identify a principal migration pattern for this--it was a select group of about twenty desert tortoises that migrated within a quarter of a mile. They all moved in this quarter-mile pattern, and if we provided sufficient crossings, we would not adversely affect this group of tortoises.

There were some costs associated with that mitigation strategy, but it was significantly less than what we would have had to do to put the canal over on the other side of the mountain. That was one instance where, by working in conjunction with the experts in the field, that we

were able to demonstrate that we could safely mitigate any adverse effects that would be associated with that one species.

The other issue of visual impact is probably still with us. We tried a number of mitigation techniques--man-made desert varnish, stains, paints, pigments, none of which did a very natural job of camouflaging, if you will, the cut slopes. But today, the casual observer driving from Phoenix to Tucson or Tucson to Phoenix doesn't even know the canal is there. I have pointed it out to people, "See our canal over there?" and they say, "No. Where's the canal?" Well, it's there, but you'd have to know where to look. In terms of the visual impacts, they are there, but they're not as serious or as impactful, perhaps, as people had originally envisioned. But I think that was the first time that we really ran onto a controversy that we were pro-active in trying to deal with the potential adverse environmental effects of what we were proposing to do.

As we moved south of Marana on the Phase B Tucson, had a major debate, and to this day I don't think it's our, Reclamation's, debate as much as it is Pima County and the city of Tucson's debate, because Pima County and the city of Tucson are still debating on whether they want to take or use CAP water. The principal water purveyor is the city of Tucson. Tucson Water Utility is an operating entity of the city of Tucson.

Visual impacts and the Tucson Aqueduct

Tucson's debate about taking/using CAP water

END OF SIDE 2, TAPE 1. JUNE 17, 1996.

BEGINNING OF SIDE 1, TAPE 2. JUNE 17, 1996.

Storey: This is tape two of an interview by Brit Storey with Larry Morton on June 17, 1996.

You were saying Tucson is the principal water seller in the area, I guess.

Morton: Right. Like I was saying, they deliver water to about a half a million customers, but many of those customers are not physically located within the boundaries of the city of Tucson. Many of them are in the outlying county area or are in towns that have incorporated adjacent to the city of Tucson, but by virtue of the fact that they never had--the city of Tucson water system had developed prior to the incorporation of the town, the water is still delivered by the city of Tucson.

The Tucson water officials wanted the CAP water to be delivered to the west of the Tucson Mountains, primarily because it minimized their costs in terms of water treatment, because the city water purveyor, Tucson Water Utility, intended to use a conventional water treatment plant for the treatment of the water. Many of the people who took their water from the city of Tucson but lay outside the city boundaries wanted to take their water from the groundwater, and they wanted the water to be delivered on the east side of the Tucson Mountains so it would be more available for recharge in the Santa Cruz River. They intended to take delivery in the Santa Cruz River, recharge that [using] Colorado River Water, and in turn pump groundwater from the surrounding aquifer of the Santa Cruz River, the intent being that they would forego the need to treat the water in some conventional water treatment process and instead use the natural treatment processes of the percolating groundwater to render the water safe for human consumption, make it potable.

That debate is still raging, and we got involved in that debate on whether the canal should go on the east side or the west side. We

tried to build a consensus in 1982 or '83 through public involvement, through very detailed environmental impact analysis, but when push came to shove, I think the decision was primarily a political decision. The contract was with the city of Tucson. The city of Tucson wanted the water delivered in Brawley Wash on the west side of the Tucson Mountains.

In terms of straight environmental impact, in fact, the west side alignment was probably less impactful, because Brawley Wash had not been historically settled as densely as the Santa Cruz River channel had been settled. If we had brought the canal in along the Santa Cruz River, there would have been a lot greater impact, adverse impact on cultural resources. The drainages that were tributary to the Santa Cruz River that had to be crossed were more numerous. They carried higher flows, and in turn there were more riparian areas that would have been impacted. The canal would have been observable from Interstate 10. It would have been fairly close to Interstate 10, because the distance between the Tucson Mountains and the Santa Cruz River and Interstate 10 are getting fairly close.

There were a number of *barrios*, Mexican-American communities that had built up along the Santa Cruz River between the Tucson Mountains and the Santa Cruz River, and we would have been crossing through those small communities. People had lived there for 100 or 200 years and were concerned about the social impacts, the severance of their lifestyle, the relocation of people away from that area outside the *barrio*.

So there was a lot of adverse impact associated, environmental impact, social impact, cultural impact, associated with the east side alignment in the Tucson B Aqueduct. The west side alignment was much cleaner from a natural

***Potential social impacts of
the Tucson Aqueduct***

environmental perspective, but then you were putting water through a conventional water treatment plant, and there was a major component of the citizenry who was opposed to taking water in that context. So the decision seemed to be fairly simple to make, but once it was made, then the justification became part of two lawsuits, both of which we prevailed on because we had done a good job in explaining what the environmental effects were.

There was still opposition to using conventional water treatment as opposed to the more natural groundwater recharge and recovery type of a process, and in 1995 a group of citizens who were opposed, through an initiative process, was successful in forcing the city of Tucson not to direct-deliver any CAP Colorado River water for at least five years. So the water treatment plant has shut down. They can't take direct delivery under their current laws in the city of Tucson. The canal that we built and was in operation in 1991 is sitting in a standby mode, not being operated, with the exception of the limited amount that is being used to exercise the pumps and make sure everything is not deteriorating. In other words, we do move a little water, but it is not direct delivered for any potable use in the city of Tucson. And that debate is still raging.

Citizen initiative in 1995 resulted in Tucson not being able to direct-deliver CAP water

Storey: But isn't there a water contract with Tucson?

Morton: Yes, but the water contract is pretty open-ended. The city of Tucson has to pay a standby charge, but if they don't order the water, there's no requirement that they take delivery. They're ordering a little bit of water, but it's basically being used for turf irrigation or recharge or delivery to some industrial processes. I think they have a small contract with one of the mines to

Tucson has to pay a standby charge even though they don't take much CAP water

take a small amount, and they have a contract with one of the irrigation districts to take a little bit of water, but they take it at our turnout, run it through their treatment plant, just to exercise the equipment and the pumps and so on in the treatment plant, and then the treated water is delivered for either agricultural or turf irrigation purposes or recharge purposes.

Storey: So what I think I'm hearing is that for the CAP there hasn't been a lot of controversy with the public about environmental effects.

Morton: Like I said, it seems to me at least, and maybe I'm a biased observer, but it seems to me that, with the exception of Orme Dam and possibly Cliff Dam, the controversy and opposition to CAP have been for reasons other than adverse effects on the natural environment. When you're just talking about the delivery and allocation of water, how you get the water there and to whom it's being delivered, the controversies have used the environmental and NEPA process, the environmental impact statement and NEPA process as a crutch, if you will, to try and stop that type of development.

But the underlying rationale for stopping that type of development has been something else. It's either been, in the case of Tucson, "do I want continue to use groundwater or go on and use conventional water treatment processes to make my water potable?" Colorado River water, of and by itself, is not potable. It has to be treated. Whether you use a natural process or you use a manmade process, it's probably immaterial to the Bureau of Reclamation. They have to meet the requirements of the Safe Drinking Water Act, the

Orme and Cliff Dams were the primary environmental controversies on CAP

requirements of the Department of Environmental Quality in the state of Arizona, and how they get the water to that state is up to the water purveyor. It's not a decision that's germane to Reclamation.

So we get drug into that kind of a debate, but it's not an issue that we have any control or any decision-making process over, and so they use the NEPA process relative to trying to stop that development because of some underlying rationale, some underlying process that they want to overcome or want to establish one way or the other.

Similarly, the legal actions that have taken place in the water allocation arena have been, we're suing on environmental grounds, but in fact what we're objecting to is, you've given too much water or not enough water to Native Americans or you've given too much water to cities and not enough water to farmers or you've given too much water to non-Indian agriculture and not enough water to cities. I mean, it's been an administrative procedure objection, or maybe not administrative procedure, but the results of that administrative procedure have been objected to, and the only course of action, if we followed all the rules in the Administrative Procedures Act and you've dotted all the I's and crossed all the T's, then the only cause for action becomes one of, "you didn't document the environmental impacts properly or correctly."

At least in the first Indian allocation, the court ruled against the United States in that regard. The plaintiffs, the governor of Arizona, focused on certain environmental impacts that weren't described. The court said they were described, but they were described in an environmental assessment. We believed that the effects are very significant; therefore, an environmental impact statement is required. You can't

just implement this action, i.e., the action of allocating water, with an environmental assessment and a finding of no significant impact, because I think that the impacts are significant. So that was the way the court ruled.

For relief, the governor asked that the contracts that had been executed with the central Arizona Indian tribes be declared null and void. The court ruled that the contracts were valid, but unenforceable until we did an EIS. So we just went out and did an EIS, put the same thing in the EIS that we had in the environmental assessment, but then went through the administrative process that NEPA requires. We had public hearings. We submitted the draft document to public comment. We accepted the public comments. We responded to the public comments and the public hearing, and we finalized the document. Made the same decision. It took another year and a half, reached the same point, but took a year and a half of additional effort and additional documentation to come to the same decision that had been made previously.

Storey: I need to ask this question differently. There must have been some point at which the construction people wanted to do something that the environmental people had to say, "We don't think this is appropriate."

Morton: Well, there were always those, but I think that, through the NEPA process, we were able to make commitments that locked the construction people into decisions that would mitigate--the construction people wouldn't have put a fence on the canal, for example. It was obvious that wildlife species were going to be lost in the canal. We lost twenty deer in one year right after we

*How commitments in the
NEPA process guided
construction work*

watered up some of the westernmost reaches of the canal. That was unacceptable, and the construction organization was more than happy to go back and put fence in after we pointed it out to them.

I guess most of the impacts that we agreed to, whether it had to do with revegetating borrow areas or fill material for dam embankments or whether it involved restoration of construction-disturbed areas along the canal, whether it involved maintenance of green-up areas on the upslope of the canal where the water would tend to pond, sure the construction people would like to see a nice dressed slope with no vegetation growing out of it, but that's something they learned to live with. Reach 11 dikes, for example, they would like to have a nice straight line, same slope on both sides. Our commitment was to make it vary the slopes upslope and downslope. They have a 3 to 1 downslope and then it would vary to a 1 to 1 and then come back to a 2 to 1 and then come out to a 4 to 1, so there was variation in the slope of the canal embankment, and, in turn, it formed a sinusoidal wave, was not a nice straight line. I think that the construction people would have a lot of problems with that, but it was either that or they didn't get to build it, so they moderated their position.

A good example would be Roosevelt Dam. We went through a rather extensive process on the visual impacts of a new dam at Roosevelt. I suspect that the construction staff would have just loved to build the dam like a Hoover Dam or a Glen Canyon Dam, with no variation in the downstream face, no attempt to match the colorations that are in the existing rock, just use native concrete coloration that comes as a result of native concrete and the aggregate that's in it. We went through a long evaluative process with the

Some of the kinds of accommodations made to deal with environmental issues

state historic preservation officer and a number of historians and people interested in the history of Roosevelt Dam. We invited a lot of public comment. We got some good ideas on using rustication strips and in turn creating--while it's not similar to, at least a unique look for the downstream face of the dam that in certain arenas tended to give a comparison, at least, to the original dam. I think that it produced an effect that is to be commended, but the construction organization would not have adopted that as their preferred method of construction, obviously.

Storey: But this was a construction project. Why didn't they have the say? What was going on in there that was altering the construction people's plans?

Morton: By the time we got into construction, I guess I would have to say that there was a large segment of the organization that perhaps did not grow up as construction practitioners. We had a number of regulatory processes we had to go through, whether it was consultation with the state historic preservation officer or consultation with the Fish and Wildlife Service on endangered species or Fish and Wildlife Coordination Act, whether it was dealing with the Department of Environmental Quality on dust abatement and air pollution. Burning, for example. Traditionally, the construction organization had waste materials, they'd burn the waste materials. They wouldn't haul it off. It costs money to haul waste materials off to a landfill. But that's the law, and they had to comply with the law.

Not only were there regulatory processes that you had to go through that constrained the traditional construction approach, I think politically the Construction Engineer, as may be the

Reclamation's traditional construction approaches were affected by regulatory processes

On CAP construction was affected by the fact that the Construction Engineer was not the primary decisionmaker

case in other historic aspects of Reclamation, was not the decision-maker. The Construction Engineer reported to the Area Manager or the Project Manager, and the Project Manager had a lot of other voices that he had to listen to, as well. It wasn't just the Construction Engineer saying, "We're going to build it this way." It was the Construction Engineer saying, "I would recommend we build it this way." But then the environmental officer had his opportunity to make input. The operations manager had his opportunity to make input. The people who were having to deal with the general public, the public affairs officer, they all had the opportunity to make input to the Project Manager. The decision was either vested then in the Project Manager or the Regional Director.

In a time line, the most recent part of CAP that probably compares in order of magnitude would be Glen Canyon Dam. The Construction Engineer at Glen Canyon Dam was responsible to the Chief Engineer in Denver. That was it. He and the chief engineer decided how Glen Canyon Dam would be built, where the access road would be, where the bridge crossing would be, where the silos for the cement were going to be located, where the town of Page would be located, how the town of Page would be operated.

Those were decisions that were made within a construction-oriented organization. There was no--I don't say that there was no. I shouldn't say that, because I don't know that for a fact. But in all likelihood, the wide spectrum of divergent viewpoints that we had on the Central Arizona Project was not there at Page in the mid-to late fifties when Glen Canyon Dam was being built. Fifteen years later, ten years later, when CAP got started, there had been a lot of changes. Many of them were regulatory. Some were

organizational. I think we got the best of both worlds. We paid a little bit more in some instances, but we got a much better product, I think, by having internal debate within the organization on how to do these things.

I think, to point to one other example, the Reach 11 area, which is North Phoenix and North Scottsdale, the traditional approach to construct that facility through North Scottsdale would have been a open canal with overshoot structures. It was the cheapest alternative. It didn't put Reclamation in a position of providing any accommodations to the Scottsdale or Phoenix infrastructure. It allowed Phoenix and Scottsdale to build roads or do whatever they wanted to.

But the Regional Director and the Project Manager had met with the city of Scottsdale and the Corps of Engineers. They concluded that for several million dollars increase in cost they could create a major benefit to the city of Scottsdale in the design of the Indian Bend Flood Control Project. While we could potentially get that back in the cost allocation, it was still going to be an increase in total cost. It probably would not--and I don't believe it does today--adversely affect the repayment entity's obligation, because much of those costs are written off as a flood control cost. But by going with the detention basins and even revegetating that dike and providing accommodations of variations of slope and alignment, we spent a little more money, several million dollars in additional cost, but we produced far more in benefits and we've created an opportunity for recreation development that is sorely needed.

Not only recreation development, but today many objectors to development north of the canal are now pointing to the detention basin as

*How Reclamation was
accommodating other
entities in its construction
work*

prime habitat for wildlife species. They want it to be maintained in a pristine state. So the detractors to the Sumitomo plant at Tatum [Boulevard] and just north of the canal are objecting to any additional surface road crossings that cross the dike because it will remove what now has developed over the last fifteen years as good quality wildlife habitat in the detention basin.

As it worked out, we made a good decision, but it's obviously a decision that was opposed by the construction forces. They would have gone in and built a more traditional type of canal with conventional cross-drainage facilities, just because it was cheaper. The best way to do it is always the cheapest way. The best alignment is a straight line between point A and point B.

Storey: In past interviews, we've talked about Cliff Pugh wanting to stay on as project manager when they thought that he should move on and that a construction engineer should come in and take over the project. So this is sort of an odd organizational structure for Reclamation, I think. Did you see any other effects of that organizational structure besides in making environmental decisions?

Morton: Yeah. We would have our debates, and it took a pretty strong--in my view, at least--a pretty strong Project Manager to make decisions based on those debates. One example would be right-of-way acquisition. Under a traditional Reclamation construction program, the Construction Engineer would point to his acquisitions chief and say, "Go buy that piece of property."

We did in CAP enter into a lot of debate on whether we wanted to buy that piece of property, which may have had some prime development potential, or move the canal 500 feet

Reclamation's Project Manager on CAP needed to be strong

On CAP there was considerable debate about property acquisition

east or west or north or south and miss that prime piece of property and buy a lesser value piece of property. It cost us more to build, but it was cheaper from a land acquisition perspective. And perhaps, in the case of the more highly valued property, it minimized our exposure in court, because you could buy the land from a willing landowner if you moved the canal, but if you went through this piece of prime property, you're probably going to be in court for two or three years in a condemnation action, and depending on the whims of the court, it could cost you a whole lot more money.

So I think that was another area that there was a lot of debate, and a lot of weight was given to the land acquisition expertise that we had on staff. Bobby Bond was here at that time, and I think he carried a lot of weight with the Project Manager in terms of alignment of the canals pursuant to land acquisition and land values.

I don't think that the operations side of the activity really had much at odds with the construction organization. Generally, the construction organization would ask the question, how do you intend to deliver the water, what flow rates do I need to build to, what kind of response times do I need to--

END OF SIDE 1, TAPE 2. June 17, 1996.

BEGINNING OF SIDE 2, TAPE 2. June 17, 1996.

Storey: What kind of response time has to be built in.

Morton: Yeah. All of those kinds of questions tended to be within the jurisdiction of the operations manager. I don't know of anything that the Construction Engineer said, "We're going to build it this way,"

that really didn't reflect or provide for the flexibility or capability to meet those criteria.

But the Operations Manager would make his views known to the Area Manager. The Construction Engineer was proposing a turnout at a certain location, and it was maybe convenient for construction to build it at that site, but, in fact, he needed a more complicated design to facilitate delivery to an irrigation district or a municipal water company or a city water treatment plant. The Operations Manager would be the advocate for his client, i.e., the water user, and that in turn would get debated before the Project Manager, and a decision would be forthcoming on whether we put the turnout where it's more convenient or less costly or of greater benefit to the operations clientele or it was easier to build and didn't take as much design and was a position that was advocated by the Construction Engineer. Sometimes it went one way, sometimes it went the other.

Certainly there was a lot of give and take. Some of those issues never even got to the Area Manager or Project Manager at that time. The staff would work it out. We'd sit down and debate, and if it was a matter of a few dollars or it took another month to complete the design for a turnout, well, to the extent it was better for our water user client, generally we were able to convince construction guys to go in that direction.

Storey: Are you saying it would be staff to staff rather than staff to Construction Engineer?

Morton: It would be staff to staff. And if the construction staff was convinced that there was no reason to accommodate, they would elevate it to the Construction Engineer. Then on the other side, the environmental staff would elevate it through

the Environmental Officer, the Operations Manager, to the Project Manager.

Everybody had access to the Project Manager. The only problem is, the Construction Engineer's access was probably stronger. That part of the organization was graded higher. They would be the same grade as the Project Manager, generally speaking. Up until 1986, both the Construction Engineer and the Project Manager were GS-15s. All of the other managers or officers were 14s or 13s. The Construction Engineer, by virtue of his added responsibility and larger staff, was graded higher. Whether that gave any more weight to his recommendations, I don't think so. I think that generally most of the Project Managers I worked with listened to the 11s and 12s just as much as they'd listen to the Construction Engineers.

The Project Manager and Construction Engineer were graded the same until 1986

Storey: What happened in '86?

Morton: [In] '86, Bob Towles was reassigned from the role of deputy director, deputy assistant. What's Darrell Webber's title? Assistant Commissioner for Engineering and Resource?

Storey: Yeah, Assistant Commissioner: Engineering and Research.

Morton: And Bob was his deputy, and Bob was SES. So when Bob was reassigned to the project manager slot, he brought his grade with him, so it went from a 15 to an SES. The Construction Engineer was still a 15. The Construction Engineer is still a 15. Dennis Schroeder succeeded Bob Towles. He was also the deputy director, deputy --

In 1986 the Project Manager became an SES position

Storey: Assistant commissioner.

Morton: Deputy Assistant Commissioner for Engineering and Research. When Dennis came to Phoenix, he brought his grade with him, as well.

Storey: One of the things that I believe Andy Dolyniuk told me was that in 1978 the contract responsibility was shifted away from the Chief Engineer's office to the regional director's office. Did that have an effect on the way decisions were made here in the CAP office that you recognize?

Changes in CAP when the contracting responsibility went from the Chief Engineer's office to the regional office in about 1978

Morton: The way we did business changed, because the contracting officer was now several hundred miles away in Boulder City, Nevada. The Construction Engineer was no longer warranted.

Storey: Meaning?

Morton: Meaning he could not make modifications to contracts or award contracts. I think this came out of--in the seventies there were a lot of hue and cry about \$500 hammers and \$10 million toilet seats and whatnot that had been acquired by non-contracting personnel in the Department of Defense, and I think that moved into Reclamation during Commissioner Higginson's era. So the Chief Engineer and the construction engineers relinquished their warrants, their authorities to enter into contracts, and an independent contracting entity was set up.

Changes in the contracting process when contracting went to the regional office

The way it worked here is, it was set up at a centralized location in Boulder City, so the contracting officer, the individual who could enter into major construction contracts, was a non-engineer and was located several hundred miles away. So how we did business changed quite dramatically. When you ran onto a change condition in the field, the field engineer, the resident field engineer could not just go to the

contractor and say, "Take that out and we'll pay for it at X dollars a cubic yard," or, "Yeah, you're right, that rock is not supposed to be there. We need to remove the rock and bring the grade down to the specification requirement. You're authorized to blast and your unit prices are X dollars to blast and Y dollars to excavate after you blast."

The field construction engineer lost that capability, and in turn had to stop the contractor, had to notify the contracting officer in Boulder City that they had run onto a change condition, and to submit a technical analysis to the contracting officer. We learned how to use faxogram machines quite readily during that era. But rather than an observable change in field site conditions and a handshake, followed up by a contract modification, which was the typical way of doing business, now you had to prepare a technical analysis to describe what had occurred, to describe the limits of the change, to submit that to the contracting officer, to get the approval of the contracting officer to go ahead with the work. This could take a matter of hours or it could take several days. So that flexibility disappeared from the constructor/contractor relationship that had been established over seventy or eighty years that preceded that time period.

The process of bid opening, the process of analyzing bids, now you had a non-engineer, a non-construction person, who was the chair or foreman of the bid opening board. That individual had the responsibility to certify that the bids were acceptable, that they were responsive to the solicitation. Previous to that time, the Construction Engineer did that. The Construction Engineer could say, "I've looked at all of these bids.

There's five bids, and these four are non-responsive. This person, even though he may have the third-highest bid, we'll award the contract to him."

That used to be within the purview of the Construction Engineer, and there was always this concern that the Construction Engineer was overstepping the bounds of his authority. His warrant said he would award the contract to the lowest bidder, but there was always a question whether that was truly the lowest bidder, whether these other bidders were responsive or non-responsive. But the Construction Engineer's word was law.

There was a concern, I think, that construction engineers and contractors were too close, that there was the potential for some fraud or some ethical questions that would arise out of this relationship. I can't say that I ever saw that here on this project. I think that our construction engineers were as ethical as any non-construction staff. But there was always this concern that all contract actions should take place with an independent third party, and so the Construction Engineer didn't control the contracting officer, the project manager didn't control the contracting officer. The contracting officer was an independent arm of a centralized contract authority that was granted to the agency.

From a practical sense, I think that the contracting officer still today reports to Kathy Gordon's organization in the Denver office, the Reclamation Service Center. The performance of the contracting officer is evaluated administratively, but from a technical perspective, the Area Manager, the Regional Director, the Construction Engineer do not exercise any technical control or authority over contracting officers. Contracting officers are totally independent of the line authority within the organization.

Storey: Were there any problems that developed other than it took longer to respond to field situations? Or any improvements?

Morton: I'm not really qualified to answer either direction. I know that there seemed to be a lot more boiler plate that went into the solicitations and into the contracts. Just the size, as an outside observer you could see the substantial increase in the size of a solicitation or a specification before and after. You'd have a half an inch before and you'd have an inch and a half after the changeover took place.

It became a significantly more difficult or time-consuming regulatory process to administer contracts. For example, we still have contracts now that are five and six and seven years after substantial completion that have yet to be closed out for one reason or another. We may be quibbling over \$10,000 on a \$5 million contract, and they still have to be resolved. Some are labor compliance issues, some are certifications or representation issues, some are, for one reason or another, the contractor has concluded it just isn't worth the effort to properly close out the contract, so I'm not going to sign a final voucher, and a contract still sits there. The funds are obligated. We're carrying them on the books as an obligation, but we haven't been able to close them out.

We have many contracts which have not been closed out because of the difficulties in the contracting process

Storey: Well, once again we've gone almost two hours. We're two minutes off, I think, three minutes maybe. So I'd like to ask you again whether you're willing for the information in these tapes and the resulting transcripts to be used by researchers.

Morton: I certainly agree to that.

Storey: Good. Thank you.

END OF SIDE 2, TAPE 2. JUNE 17, 1996.

BEGINNING OF SIDE 1, TAPE 1. JUNE 18, 1996.

Storey: This is Brit Allan Storey, Senior Historian at the Bureau of Reclamation, interviewing Larry Morton in the Phoenix area office on June 18, 1996, at about ten o'clock in the morning. This is tape one.

One of the things that I'm interested in that was going on, and we've already talked about it quite a bit, actually, is the Navajo Powerplant. I think a question I didn't ask was, we were, in effect, buying over 20 percent of this powerplant. Were we investing the money in that, or were we just committing to purchase that much of the power?

Reclamation and its involvement with the Navajo Generating Station

Morton: No, we were making a capital investment, and it was coming directly out of our budget each and every year. Generally, that's why it took so long to really get CAP rolling is that the first increment of funding went to fund the Navajo Powerplant.

We entered into the Navajo participation agreement contracts in '69, I believe it was, and by '71 the Salt River Project, who was the agent, the entity's agent, the consortium's agent for the construction of the powerplant, had issued their first construction contracts. We were committed to paying, on the powerplant, 24.3 percent of the construction costs concurrent with construction, and because of our budgetary process on a fiscal year basis, we were unable to fund our share of the cost the first year. Fortunately, the framers of the participation agreement realized that there was a mismatch in their budget cycles versus the government's budget cycles and had made provisions for the other participants, the other five

Reclamation invested in the Navajo Generating Station, and the Salt River Project holds our 24.3 percent investment in trust

participants, to pick up the Federal share of the costs. I think in that first year it was a relatively small sum of money, less than a million dollars, I think, that they basically loaned to the Federal Government and then recaptured, I believe, out of the fiscal year '72 appropriations. So the first year or two, the level of appropriations was relatively small, less than \$10 million, I think, for '72 and '73.

But by 1974, construction was moving ahead quite dramatically. The government's share of the cost, 24.3 percent, amounted to about \$222 million, I believe, and that included both the powerplant and the two transmission lines, the western transmission line that went from Page to the Las Vegas area, and the southern transmission line that brought power from Page down to the Phoenix area. So \$222-223 million was paid out over the period 1972 through 1979 to Salt River Project or, in the case of the southern transmission system, the Arizona Public Service Company, and in the case of the western transmission line, the city of Los Angeles Department of Water and Power was the constructor for that transmission line, a 345-kV transmission line.

Those payments were made over that time period. The first unit went into commercial operation. It was a three-unit powerplant, each with approximately 750 megawatts installed capacity. The first unit went on line in '76, and then the second unit was '77, the third unit was '78, and then there was some minor cleanup work and finalization of the contracts that took place in '79. So the funding sequence was '72 through '79, with a loan in '71, so there was a nine-year construction period for that facility.

The title to the facilities, the share of the title was held in trust by Salt River Project. The

There were two power transmission lines associated with the Navajo Generating Station

United States did not get title to the plant. What we got was a right to use the power and an agreement with Salt River to hold the U.S.'s share in trust. So they're basically a trustee for the United States for the 24.3 percent of the plant that's in the United States.

Storey: For Reclamation, I would think this was sort of an unusual situation, where we were spending \$222 million worth of taxpayers' money, and we were used to controlling the quality of construction. Did that cause any problems within Reclamation or any discussions? And also, what did we do to try to assure quality, if anything?

Morton: I don't think that it really was an issue within the construction community within Reclamation. A coal-fired powerplant is not one of our fortes. Reclamation had no experience in that area. This was a unique situation, the one-time-only opportunity to obtain electrical energy at a relatively low cost.

Our involvement in terms of quality control or control of the budget or control of the expenditure of funds was pretty much limited. We had representatives on what is known as the E&O Committee, the Engineering and Operating Committee. We had two engineers that served on that committee.

As is the case with most multiple-owner powerplants, the constructing agent is the responsible party, but that agent is guided by a majority vote of the participants, and in this case we had the five participants. Salt River was the agent, and they're the ones that awarded the contracts. They're the ones that administered the contracts, oversaw the construction, managed the construction. They're the ones that employed the consultants that did the design. These were not

How Reclamation was involved in construction and is involved in management of the Navajo Generating Station

in-house designs. The designs were done out-house with consultants. All ten of the representatives, two from each of the participants on the Engineering and Operating Committee, had the opportunity to oversee and make recommendations, but that was pretty much the limit of our involvement, as was it for any of the other participants. Salt River called the shots, and they were responsible for the schedule, they were responsible for the design, and they were responsible to oversee the quality control and quality assurance of the construction.

I didn't really hear any hue and cry from Reclamation that they [Reclamation] needed to be involved. It was pretty much passed through operations. It was a financial operation. I mean, our involvement was primarily a financial involvement. We got the appropriations, and we passed the money through based on the schedules that had been established by Salt River and agreed to by the E&O Committee.

Similarly, there was a Finance Committee that audited Salt River's expenditures. There was a number of other committees that Salt River set up. One or two representatives from each of the participants sat on those committees, and the committees had a set area of responsibility. If two of the participants objected and three of them were in favor of it, the three of them controlled. If Salt River decided they needed some kind of pretreatment on the coal, that would be presented to the Engineering Committee. They would look at it. They would hear expert opinions from various consultants. They could bring their own consultants in if they had some problems with what was going on.

But within Reclamation, we never had any experience with coal-fired powerplants. So it was

kind of hard for us to say that we had any expertise we could bring to bear. Of course, that was in the era, I think, of the Chief Engineer, and I don't recall that there was any control requested or any oversight that the Engineering and Research Center brought to bear on that activity. I think it was pretty much a regional financial relationship, with some oversight from both the engineering and operating staff.

Storey: This was in the era right after [passage of] NEPA. Was there any NEPA involvement that you were aware of?

Morton: Oh, yeah, a lot of NEPA. The land that was involved, of course, was on an Indian reservation, so you had the Bureau of Indian Affairs involved. The water was coming out of Lake Powell. It crossed a short stretch of--the diversion area crossed a small stretch of the Glen Canyon National Recreation Area, so you had the Park Service involved. The Park Service was concerned about visibility as a result of emissions from the stacks. You had transmission lines that crossed various parts of the Grand Canyon National Park or were visible from either the Grand Canyon National Park or some of the national parks and monuments in southern Utah. You had BLM land that the transmission lines crossed. You had Forest Service land that the transmission lines crossed. So every [involved] Federal agency had some role in the NEPA process.

I think, if I remember correctly, there were four environmental statements associated with the entire project. The McCullough substation near Las Vegas, near Boulder City, was on BLM land, and I think BLM was the lead agency for that one. The Western Transmission Line and the Navajo

*NEPA and the Navajo
Generating Station*

*There were four
environmental statements
associated with the Navajo
Generating Station*

Powerplant, I believe, there were separate statements for each of those two features, and I believe the Park Service was the lead agency for those two statements. The Southern Transmission Line came through about four national forests in Arizona, and so the Forest Service, if I remember correctly, was the lead agency. And then every one of the other involved agencies was a cooperator or was involved in some fashion. If they had land or other other environmental values that would have been impacted or would be impacted by the undertaking, they were all involved in the preparation and the analysis that went into those statements. Yeah, NEPA was a big role.

Storey: Did that cause a lot of problems? Let me ask a different question first. Were you personally involved in doing any of that?

Morton: No, I was not involved. As a matter of fact, the Regional Environmental Officer was the lead participant from the Bureau of Reclamation. It was not an issue for the Phoenix office. It was an issue for--if I remember right, I believe John Peters was our Environmental Officer in Denver at that time. It was an issue for John. It was an issue for--I can't remember the name of our first Environmental Officer in the region, but he was involved. He was a former Park Service employee, I remember that, that we hired right after NEPA opened up--Al Jonez. Al Jonez and John Peters were the two Bureau people who were directly involved in the preparation of those documents.

I think, generally speaking, the documents themselves were actually done by consultants for the various power companies. They were

overseen by the lead agency, and then there was involvement by all of the federal agencies. I think we had two levels of involvement. One was as a participant and a user of the power. We were in the group of the power user community, and so we had some involvement in that arena.

But we also had some responsibilities in the area of the water resources. Cooling water was proposed to be returned to the lake, for example, and so there were concerns about contamination of the lake and the water of the Colorado River and the fact that we operated Glen Canyon Dam, and there were certain operating requirements that we had at Glen Canyon. Now that I think about it, I guess the Upper Region may have also been involved. Harold Sersland or one of the early environmental officers for the Upper Colorado Region was also likely involved in that aspect of it, not the aspect of--were we doing a good job from the power user, power consumer perspective, but from the Resource Manager perspective. The Upper Colorado Region was very likely a participant in those EISs, as well, at least the western transmission and the one for the powerplant itself, because those are in the Upper Colorado Basin, now that I think about it. So it wasn't a real issue for this office, per se.

Relative to concerns, I think that NEPA was still in its infancy, and if we'd waited another ten years, there would have been major, major controversies. But I think that, while we complied with NEPA, it was in its infancy. The regulations were still somewhat in a draft form. I don't think that they had then received final promulgation by CEQ. I think that there was a lot of sentiment to get on with this [power]plant, because it was obviously a needed plant in the Southwest. I think that there was some relief that the Federal Government had found another alternative and

NEPA and the environmental community in relation to the Navajo Generating Station

had backed away from the dams, from the Colorado River dams, Bridge Canyon, Marble Canyon Dam, and had agreed on an alternative.

I think that there was some endorsements that took place when the project was authorized and we moved away. The Sierra Club and the National Audubon Society kind of endorsed that approach to obtaining power for CAP, because they felt like the dams, the Colorado River dams, the Grand Canyon dams, would be much more sensitive and much more impactive to the natural ecological systems, and so they couldn't hardly go back on that endorsement. I think that there was some political correctness there, that they'd won the victory in that there was no Colorado River dams, and there was some tacit endorsement to coal-fired powerplants using low-sulfur coal, providing jobs for the Native American community on the Navajo Indian Reservation. So there was this endorsement that did take place during the legislative process, and I think when the EIS was written, it was difficult for them to politically oppose the powerplants.

So the opposition, to the best of my recollection, was not a serious one. There were concerns, and there were future requirements for commitments that were embodied in the permits and so on that were granted. Of course, that gave rise in 1991, '92, somewhere in that time frame, when the government agreed to--all the participants agreed to participate in putting scrubbers on the emissions.

We're in the process right now of a half-a-billion-dollar retrofit of the Navajo generating station with wet scrubbers, but that came about as a result of the commitments that were in the environmental impact statement and the commitments that were associated with the permits that

Commitments in the environmental statement are resulting in substantial retrofitting of the Navajo Generating Station

basically said, if visibility becomes a problem, we'll examine the potential, and if deemed appropriate, we will agree to install systems that will reduce emissions.

Storey: Let's bring that story up to date, then. Who started saying, "We've got visibility problems"?

Morton: Our friends with the Park Service. And they did! As now they're looking at the situation in the Grand Canyon and in the national parks and monuments of southern Utah. There's still a lot of questions on whether the visibility problems are as a direct result of the Navajo Generating Station. I think now everything I've read recently in the newspaper would indicate that it's people problems. It's automobile emissions, it's pollution that moves from the Phoenix and Los Angeles and Las Vegas airsheds that are the culprit. It's the visitors to the Grand Canyon and the aircraft that flies in the Grand Canyon that produces the preponderance of the visibility problems that now exist in the canyon.

Visibility at Grand Canyon National Park and the Navajo Generating Station

That was an argument, certainly, that was put forward in the late '80s and early '90s nineties by the participants. Each side had their battery of experts that testified in the lawsuit. But it was a stipulated settlement, and the Salt River Project and the other participants have lived up to that stipulation. The retrofit of the plant is almost as difficult a job as building the plant in the first place. I mean, we're talking about a seven-year construction program. We're in the fourth year now. I think by '98 the first unit will be on line, and by '99 the other two units will be on line with the scrubbers.

Storey: A lawsuit, you said.

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- Morton:** Yeah, there was as lawsuit.
- Storey:** Brought by whom against whom?
- Morton:** You know, I'm at a loss right now. I'm thinking that it was by the United States against the Salt River Project and the Navajo participants. It seems to me that that was the case. Certainly the Park Service. I remember the testimony of the Park Service experts. They had a number of consultants. They had some experts on their staff. I had the opportunity to sit at a couple of public meetings that were held here in Phoenix, and it seems to me that it was the Park Service and the Secretary of the Interior that brought suit. I could be wrong on that, but I suspect that it had some Federal participation.
- Storey:** I recall somewhere that the participants were put on a course that was going to be very, very expensive, and they sort of stepped back and said, "Wait a minute. Let's do it a different way." Am I thinking correctly?
- Morton:** I'm not sure what relief the plaintiffs asked for in the suit, but it could have taken the position of shutting the plant down. It could have gone to that set of dire consequences. And you're right, the participants said--well, as is the case with many lawsuits like this that are brought on environmental grounds, the judge frequently, it seems to me at least, tries to get the parties to reach some accommodation. I'm sure that the judge was pushing for settlement, because in the worst case he might have to rule that the Navajo Powerplant would have to be abandoned and the land restored, and that would have been a very expensive process, not only an expensive process,

plan, from our perspective. Does it produce any impacts that are stoppers?"

Generally, at least in the case of the canals--at least until we got down to Tucson, and I'll tell you about Tucson later. But for the Havasu diversion, the Granite Reef, and the Salt-Gila Aqueducts, generally I think that they came back and said, "This plan doesn't produce any different impact, and when you compare this plan versus the no construction plan, the impacts are the same whether you chose alternate of A, B, C, or D. The real key to making the decision is, which of A, B, C, or D is the cheapest plan, because I can't differentiate on any environmental ground. I lose X sites or Y sites from a cultural resource perspective. I lose so many acres of upland habitat from this one or that one. But you're building basically the same prism. You're scarifying the land between the upstream toe of the O&M road to the downstream toe of the O&M road."

That was 180 to 250 feet, and whatever was in there in terms of environmental resource was going to be lost. But here in Arizona, you aren't talking much deviation in terms of those resources. The cultural resources were relatively sparse. You were dealing with desert upland habitat that had relatively little habitat or cover value for wildlife species. The loss of animals in the canal was going to occur whether it was two miles downstream or three miles upstream from this location. Generally, the mitigation efforts were going to be the same. You were going to fence the canal. You were going to put wildlife bridges across the canal. You were going to provide dirt cover on your overshoots so that the wildlife could walk across the overshoots. You were going to provide escape ramps in the plunge pools of the overshoots so that the wildlife could

walk back out. You were going to replace the dirt on the overshoots when floods came down and washed that off. So the bottom line was, generally speaking, the impacts were going to be just about the same.

Where you got into debate was when you got close to stream channels, and we were crossing all stream channels at right angles. We were running at right angles to the normal prevailing cross-drainage. So while we could adjust upstream or downstream, it was just a case of, after you had defined the general alignment, then you could go out and look for individual differentiation between each site, and you could generally make those adjustments in the field to miss--for example, you might have a seep that produced a wetland, and you wanted to go around the wetland, you wanted to preserve the wetland. You could move the canal a couple hundred feet downstream, and you'd miss the wetland. But we don't have five miles of wetland or riparian areas lying along these stream channels.

Similarly, you'd come into stream channels and the frequency and value of the cultural resource sites would be certainly a lot more important along stream channels. During prehistoric times, that's where the Native Americans located. They were highly dependent on stream channels.

When we came up through saddles, for example, of course we'd try to minimize the amount of cut or the amount of excavation we would have to make, so oftentimes we would either go around the toe of a mountain or we'd try to go through a saddle, and as you come into those types of places, they would be migration routes for wildlife, for example. The native animals didn't climb over the tops of mountains, either.

Stream channels and wetlands were areas where environmental issues were more sensitive

How construction might affect wildlife travel routes

They wanted to go around the toe of the mountain or through the saddle just like where we wanted to take the canal alignment.

Oftentimes we'd--well, not oftentimes, but on occasion we'd come upon petroglyphs or gardening areas where Native Americans had grown crops from time to time. They tended to be gathering places or hunting-types of places for the Native Americans. So we often had to provide special consideration and fence those areas off or we'd try to move the canal upslope or downslope so that we didn't damage those types of cultural and historical remains. But they tended to be very site-specific, and from a gross sense of 190 miles worth of canal, whether you were on one alignment or another alignment a mile or two miles away, the net impact was going to be just about the same on either alignment. So, those types of analyses did not enter into the final decision on location.

Cultural resources on the CAP

Storey: Did they ever begin to enter into the decision-making process that you had alternatives which were obviously better but more expensive, (Morton: Yes.) so that you had dissension within Reclamation about where the location should be? When did that kind of thing start?

Morton: That really started when we got farther south, other than with the reservoirs, when we were only talking about the canals. When we got into the Tucson Aqueduct phase, there were two phases, Phase A and Phase B. Phase A was intended to take water from the terminus of the Salt-Gila Aqueduct, which was, oh, about Picacho Reservoir. It shouldn't even say Picacho Reservoir. Picacho Reservoir is a facility of the San Carlos Irrigation Project. But in the Picacho area, south of Florence, Arizona, was where the

Controversy over the Tucson Aqueduct

Tucson Aqueduct was going to begin. It began at that location, and Phase A took the water down to the vicinity of Marana. So from Picacho to Marana, which is basically south central Pinal County into northern Pima County, there was a debate on whether the alignment should go to the east side of the Picacho Mountains or to the west side of the Picacho Mountains, and that debate was spurred by the desert tortoise and the habitat of the desert tortoise.

There was also a secondary concern expressed for the visual effects of the canal on the west side alignment. The canal was visible because of the scarring of the hillside along Newman Peak. Along Newman Peak would be visible from Interstate 10, and so there was a major debate on visual impacts.

But I think that the significant activity related to Phase A [of the] Tucson Aqueduct was the potential for impact on the desert tortoise, which at that time, or at least leading up to that time, was not yet on the endangered species list. It is now, but at that time the state of Arizona had it listed as a candidate species. The Fish and Wildlife Service did not recognize a unique status, although there was substantial concern for its status. They just had not yet promulgated the regulations that established the desert tortoise as an endangered species.

We took a lot of care in our analysis. We had a three-person team that worked over two years with attaching radios to desert tortoises to determine their home range, their migration patterns, their feeding habits, their nocturnal habits, to find their dens, and I think it was only-- as a matter of fact, one of the individuals wrote her master's thesis on that subject. But I think it was only as a result of the professional interaction with the whole biological community that had an

*Desert tortoise issues
along the Tucson
Aqueduct*

opportunity to observe what we had done that the controversy on whether we should go around the west side area [developed].

The west side area was obviously the less expensive. To go over to the east side of the Picacho Mountain range would have cost--I don't know that the capital cost was that much different, but you had to pump the water an additional 200 feet, and so the total cost, when you considered the additional energy that was involved, was significantly greater. So from a cost perspective and from a development perspective, I think we were of the opinion that the best plan was one along the west side of the Picacho Mountains as opposed to the east.

But there was a lot of concern raised about the desert tortoise, and I think that we had a lot of public involvement. We had a lot of peer review of our research on those desert tortoises. We had two independent contractors, one at ASU, one at the University of Arizona, plus our own staff, all who came up with the same answer, that if we stayed out of a specific area there along the toe of Newman Peak where the preponderance of the dens were located, if we provided tortoise fencing, and if we provided crossings along the canal, the migration--we did identify a principal migration pattern for this--it was a select group of about twenty desert tortoises that migrated within a quarter of a mile. They all moved in this quarter-mile pattern, and if we provided sufficient crossings, we would not adversely affect this group of tortoises.

There were some costs associated with that mitigation strategy, but it was significantly less than what we would have had to do to put the canal over on the other side of the mountain. That was one instance where, by working in conjunction with the experts in the field, that we

were able to demonstrate that we could safely mitigate any adverse effects that would be associated with that one species.

The other issue of visual impact is probably still with us. We tried a number of mitigation techniques--man-made desert varnish, stains, paints, pigments, none of which did a very natural job of camouflaging, if you will, the cut slopes. But today, the casual observer driving from Phoenix to Tucson or Tucson to Phoenix doesn't even know the canal is there. I have pointed it out to people, "See our canal over there?" and they say, "No. Where's the canal?" Well, it's there, but you'd have to know where to look. In terms of the visual impacts, they are there, but they're not as serious or as impactful, perhaps, as people had originally envisioned. But I think that was the first time that we really ran onto a controversy that we were pro-active in trying to deal with the potential adverse environmental effects of what we were proposing to do.

As we moved south of Marana on the Phase B Tucson, had a major debate, and to this day I don't think it's our, Reclamation's, debate as much as it is Pima County and the city of Tucson's debate, because Pima County and the city of Tucson are still debating on whether they want to take or use CAP water. The principal water purveyor is the city of Tucson. Tucson Water Utility is an operating entity of the city of Tucson.

*Visual impacts and the
Tucson Aqueduct*

*Tucson's debate about
taking/using CAP water*

END OF SIDE 2, TAPE 1. JUNE 17, 1996.

BEGINNING OF SIDE 1, TAPE 2. JUNE 17, 1996.

Storey: This is tape two of an interview by Brit Storey with Larry Morton on June 17, 1996.

You were saying Tucson is the principal water seller in the area, I guess.

Morton: Right. Like I was saying, they deliver water to about a half a million customers, but many of those customers are not physically located within the boundaries of the city of Tucson. Many of them are in the outlying county area or are in towns that have incorporated adjacent to the city of Tucson, but by virtue of the fact that they never had--the city of Tucson water system had developed prior to the incorporation of the town, the water is still delivered by the city of Tucson.

The Tucson water officials wanted the CAP water to be delivered to the west of the Tucson Mountains, primarily because it minimized their costs in terms of water treatment, because the city water purveyor, Tucson Water Utility, intended to use a conventional water treatment plant for the treatment of the water. Many of the people who took their water from the city of Tucson but lay outside the city boundaries wanted to take their water from the groundwater, and they wanted the water to be delivered on the east side of the Tucson Mountains so it would be more available for recharge in the Santa Cruz River. They intended to take delivery in the Santa Cruz River, recharge that [using] Colorado River Water, and in turn pump groundwater from the surrounding aquifer of the Santa Cruz River, the intent being that they would forego the need to treat the water in some conventional water treatment process and instead use the natural treatment processes of the percolating groundwater to render the water safe for human consumption, make it potable.

That debate is still raging, and we got involved in that debate on whether the canal should go on the east side or the west side. We

tried to build a consensus in 1982 or '83 through public involvement, through very detailed environmental impact analysis, but when push came to shove, I think the decision was primarily a political decision. The contract was with the city of Tucson. The city of Tucson wanted the water delivered in Brawley Wash on the west side of the Tucson Mountains.

In terms of straight environmental impact, in fact, the west side alignment was probably less impactful, because Brawley Wash had not been historically settled as densely as the Santa Cruz River channel had been settled. If we had brought the canal in along the Santa Cruz River, there would have been a lot greater impact, adverse impact on cultural resources. The drainages that were tributary to the Santa Cruz River that had to be crossed were more numerous. They carried higher flows, and in turn there were more riparian areas that would have been impacted. The canal would have been observable from Interstate 10. It would have been fairly close to Interstate 10, because the distance between the Tucson Mountains and the Santa Cruz River and Interstate 10 are getting fairly close.

There were a number of *barrios*, Mexican-American communities that had built up along the Santa Cruz River between the Tucson Mountains and the Santa Cruz River, and we would have been crossing through those small communities. People had lived there for 100 or 200 years and were concerned about the social impacts, the severance of their lifestyle, the relocation of people away from that area outside the *barrio*.

So there was a lot of adverse impact associated, environmental impact, social impact, cultural impact, associated with the east side alignment in the Tucson B Aqueduct. The west side alignment was much cleaner from a natural

*Potential social impacts of
the Tucson Aqueduct*

environmental perspective, but then you were putting water through a conventional water treatment plant, and there was a major component of the citizenry who was opposed to taking water in that context. So the decision seemed to be fairly simple to make, but once it was made, then the justification became part of two lawsuits, both of which we prevailed on because we had done a good job in explaining what the environmental effects were.

There was still opposition to using conventional water treatment as opposed to the more natural groundwater recharge and recovery type of a process, and in 1995 a group of citizens who were opposed, through an initiative process, was successful in forcing the city of Tucson not to direct-deliver any CAP Colorado River water for at least five years. So the water treatment plant has shut down. They can't take direct delivery under their current laws in the city of Tucson. The canal that we built and was in operation in 1991 is sitting in a standby mode, not being operated, with the exception of the limited amount that is being used to exercise the pumps and make sure everything is not deteriorating. In other words, we do move a little water, but it is not direct delivered for any potable use in the city of Tucson. And that debate is still raging.

Citizen initiative in 1995 resulted in Tucson not being able to direct-deliver CAP water

Storey: But isn't there a water contract with Tucson?

Morton: Yes, but the water contract is pretty open-ended. The city of Tucson has to pay a standby charge, but if they don't order the water, there's no requirement that they take delivery. They're ordering a little bit of water, but it's basically being used for turf irrigation or recharge or delivery to some industrial processes. I think they have a small contract with one of the mines to

Tucson has to pay a standby charge even though they don't take much CAP water

take a small amount, and they have a contract with one of the irrigation districts to take a little bit of water, but they take it at our turnout, run it through their treatment plant, just to exercise the equipment and the pumps and so on in the treatment plant, and then the treated water is delivered for either agricultural or turf irrigation purposes or recharge purposes.

Storey: So what I think I'm hearing is that for the CAP there hasn't been a lot of controversy with the public about environmental effects.

Morton: Like I said, it seems to me at least, and maybe I'm a biased observer, but it seems to me that, with the exception of Orme Dam and possibly Cliff Dam, the controversy and opposition to CAP have been for reasons other than adverse effects on the natural environment. When you're just talking about the delivery and allocation of water, how you get the water there and to whom it's being delivered, the controversies have used the environmental and NEPA process, the environmental impact statement and NEPA process as a crutch, if you will, to try and stop that type of development.

But the underlying rationale for stopping that type of development has been something else. It's either been, in the case of Tucson, "do I want continue to use groundwater or go on and use conventional water treatment processes to make my water potable?" Colorado River water, of and by itself, is not potable. It has to be treated. Whether you use a natural process or you use a manmade process, it's probably immaterial to the Bureau of Reclamation. They have to meet the requirements of the Safe Drinking Water Act, the

Orme and Cliff Dams were the primary environmental controversies on CAP

requirements of the Department of Environmental Quality in the state of Arizona, and how they get the water to that state is up to the water purveyor. It's not a decision that's germane to Reclamation.

So we get drug into that kind of a debate, but it's not an issue that we have any control or any decision-making process over, and so they use the NEPA process relative to trying to stop that development because of some underlying rationale, some underlying process that they want to overcome or want to establish one way or the other.

Similarly, the legal actions that have taken place in the water allocation arena have been, we're suing on environmental grounds, but in fact what we're objecting to is, you've given too much water or not enough water to Native Americans or you've given too much water to cities and not enough water to farmers or you've given too much water to non-Indian agriculture and not enough water to cities. I mean, it's been an administrative procedure objection, or maybe not administrative procedure, but the results of that administrative procedure have been objected to, and the only course of action, if we followed all the rules in the Administrative Procedures Act and you've dotted all the I's and crossed all the T's, then the only cause for action becomes one of, "you didn't document the environmental impacts properly or correctly."

At least in the first Indian allocation, the court ruled against the United States in that regard. The plaintiffs, the governor of Arizona, focused on certain environmental impacts that weren't described. The court said they were described, but they were described in an environmental assessment. We believed that the effects are very significant; therefore, an environmental impact statement is required. You can't

just implement this action, i.e., the action of allocating water, with an environmental assessment and a finding of no significant impact, because I think that the impacts are significant. So that was the way the court ruled.

For relief, the governor asked that the contracts that had been executed with the central Arizona Indian tribes be declared null and void. The court ruled that the contracts were valid, but unenforceable until we did an EIS. So we just went out and did an EIS, put the same thing in the EIS that we had in the environmental assessment, but then went through the administrative process that NEPA requires. We had public hearings. We submitted the draft document to public comment. We accepted the public comments. We responded to the public comments and the public hearing, and we finalized the document. Made the same decision. It took another year and a half, reached the same point, but took a year and a half of additional effort and additional documentation to come to the same decision that had been made previously.

Storey: I need to ask this question differently. There must have been some point at which the construction people wanted to do something that the environmental people had to say, "We don't think this is appropriate."

Morton: Well, there were always those, but I think that, through the NEPA process, we were able to make commitments that locked the construction people into decisions that would mitigate--the construction people wouldn't have put a fence on the canal, for example. It was obvious that wildlife species were going to be lost in the canal. We lost twenty deer in one year right after we

*How commitments in the
NEPA process guided
construction work*

watered up some of the westernmost reaches of the canal. That was unacceptable, and the construction organization was more than happy to go back and put fence in after we pointed it out to them.

I guess most of the impacts that we agreed to, whether it had to do with revegetating borrow areas or fill material for dam embankments or whether it involved restoration of construction-disturbed areas along the canal, whether it involved maintenance of green-up areas on the upslope of the canal where the water would tend to pond, sure the construction people would like to see a nice dressed slope with no vegetation growing out of it, but that's something they learned to live with. Reach 11 dikes, for example, they would like to have a nice straight line, same slope on both sides. Our commitment was to make it vary the slopes upslope and downslope. They have a 3 to 1 downslope and then it would vary to a 1 to 1 and then come back to a 2 to 1 and then come out to a 4 to 1, so there was variation in the slope of the canal embankment, and, in turn, it formed a sinusoidal wave, was not a nice straight line. I think that the construction people would have a lot of problems with that, but it was either that or they didn't get to build it, so they moderated their position.

A good example would be Roosevelt Dam. We went through a rather extensive process on the visual impacts of a new dam at Roosevelt. I suspect that the construction staff would have just loved to build the dam like a Hoover Dam or a Glen Canyon Dam, with no variation in the downstream face, no attempt to match the colorations that are in the existing rock, just use native concrete coloration that comes as a result of native concrete and the aggregate that's in it. We went through a long evaluative process with the

Some of the kinds of accommodations made to deal with environmental issues

state historic preservation officer and a number of historians and people interested in the history of Roosevelt Dam. We invited a lot of public comment. We got some good ideas on using rustication strips and in turn creating--while it's not similar to, at least a unique look for the downstream face of the dam that in certain arenas tended to give a comparison, at least, to the original dam. I think that it produced an effect that is to be commended, but the construction organization would not have adopted that as their preferred method of construction, obviously.

Storey: But this was a construction project. Why didn't they have the say? What was going on in there that was altering the construction people's plans?

Morton: By the time we got into construction, I guess I would have to say that there was a large segment of the organization that perhaps did not grow up as construction practitioners. We had a number of regulatory processes we had to go through, whether it was consultation with the state historic preservation officer or consultation with the Fish and Wildlife Service on endangered species or Fish and Wildlife Coordination Act, whether it was dealing with the Department of Environmental Quality on dust abatement and air pollution. Burning, for example. Traditionally, the construction organization had waste materials, they'd burn the waste materials. They wouldn't haul it off. It costs money to haul waste materials off to a landfill. But that's the law, and they had to comply with the law.

Not only were there regulatory processes that you had to go through that constrained the traditional construction approach, I think politically the Construction Engineer, as may be the

Reclamation's traditional construction approaches were affected by regulatory processes

On CAP construction was affected by the fact that the Construction Engineer was not the primary decisionmaker

case in other historic aspects of Reclamation, was not the decision-maker. The Construction Engineer reported to the Area Manager or the Project Manager, and the Project Manager had a lot of other voices that he had to listen to, as well. It wasn't just the Construction Engineer saying, "We're going to build it this way." It was the Construction Engineer saying, "I would recommend we build it this way." But then the environmental officer had his opportunity to make input. The operations manager had his opportunity to make input. The people who were having to deal with the general public, the public affairs officer, they all had the opportunity to make input to the Project Manager. The decision was either vested then in the Project Manager or the Regional Director.

In a time line, the most recent part of CAP that probably compares in order of magnitude would be Glen Canyon Dam. The Construction Engineer at Glen Canyon Dam was responsible to the Chief Engineer in Denver. That was it. He and the chief engineer decided how Glen Canyon Dam would be built, where the access road would be, where the bridge crossing would be, where the silos for the cement were going to be located, where the town of Page would be located, how the town of Page would be operated.

Those were decisions that were made within a construction-oriented organization. There was no--I don't say that there was no. I shouldn't say that, because I don't know that for a fact. But in all likelihood, the wide spectrum of divergent viewpoints that we had on the Central Arizona Project was not there at Page in the mid-to late fifties when Glen Canyon Dam was being built. Fifteen years later, ten years later, when CAP got started, there had been a lot of changes. Many of them were regulatory. Some were

organizational. I think we got the best of both worlds. We paid a little bit more in some instances, but we got a much better product, I think, by having internal debate within the organization on how to do these things.

I think, to point to one other example, the Reach 11 area, which is North Phoenix and North Scottsdale, the traditional approach to construct that facility through North Scottsdale would have been a open canal with overshoot structures. It was the cheapest alternative. It didn't put Reclamation in a position of providing any accommodations to the Scottsdale or Phoenix infrastructure. It allowed Phoenix and Scottsdale to build roads or do whatever they wanted to.

But the Regional Director and the Project Manager had met with the city of Scottsdale and the Corps of Engineers. They concluded that for several million dollars increase in cost they could create a major benefit to the city of Scottsdale in the design of the Indian Bend Flood Control Project. While we could potentially get that back in the cost allocation, it was still going to be an increase in total cost. It probably would not--and I don't believe it does today--adversely affect the repayment entity's obligation, because much of those costs are written off as a flood control cost. But by going with the detention basins and even revegetating that dike and providing accommodations of variations of slope and alignment, we spent a little more money, several million dollars in additional cost, but we produced far more in benefits and we've created an opportunity for recreation development that is sorely needed.

Not only recreation development, but today many objectors to development north of the canal are now pointing to the detention basin as

*How Reclamation was
accommodating other
entities in its construction
work*

prime habitat for wildlife species. They want it to be maintained in a pristine state. So the detractors to the Sumitomo plant at Tatum [Boulevard] and just north of the canal are objecting to any additional surface road crossings that cross the dike because it will remove what now has developed over the last fifteen years as good quality wildlife habitat in the detention basin.

As it worked out, we made a good decision, but it's obviously a decision that was opposed by the construction forces. They would have gone in and built a more traditional type of canal with conventional cross-drainage facilities, just because it was cheaper. The best way to do it is always the cheapest way. The best alignment is a straight line between point A and point B.

Storey: In past interviews, we've talked about Cliff Pugh wanting to stay on as project manager when they thought that he should move on and that a construction engineer should come in and take over the project. So this is sort of an odd organizational structure for Reclamation, I think. Did you see any other effects of that organizational structure besides in making environmental decisions?

Morton: Yeah. We would have our debates, and it took a pretty strong--in my view, at least--a pretty strong Project Manager to make decisions based on those debates. One example would be right-of-way acquisition. Under a traditional Reclamation construction program, the Construction Engineer would point to his acquisitions chief and say, "Go buy that piece of property."

We did in CAP enter into a lot of debate on whether we wanted to buy that piece of property, which may have had some prime development potential, or move the canal 500 feet

Reclamation's Project Manager on CAP needed to be strong

On CAP there was considerable debate about property acquisition

east or west or north or south and miss that prime piece of property and buy a lesser value piece of property. It cost us more to build, but it was cheaper from a land acquisition perspective. And perhaps, in the case of the more highly valued property, it minimized our exposure in court, because you could buy the land from a willing landowner if you moved the canal, but if you went through this piece of prime property, you're probably going to be in court for two or three years in a condemnation action, and depending on the whims of the court, it could cost you a whole lot more money.

So I think that was another area that there was a lot of debate, and a lot of weight was given to the land acquisition expertise that we had on staff. Bobby Bond was here at that time, and I think he carried a lot of weight with the Project Manager in terms of alignment of the canals pursuant to land acquisition and land values.

I don't think that the operations side of the activity really had much at odds with the construction organization. Generally, the construction organization would ask the question, how do you intend to deliver the water, what flow rates do I need to build to, what kind of response times do I need to--

END OF SIDE 1, TAPE 2. June 17, 1996.

BEGINNING OF SIDE 2, TAPE 2. June 17, 1996.

Storey: What kind of response time has to be built in.

Morton: Yeah. All of those kinds of questions tended to be within the jurisdiction of the operations manager. I don't know of anything that the Construction Engineer said, "We're going to build it this way,"

that really didn't reflect or provide for the flexibility or capability to meet those criteria.

But the Operations Manager would make his views known to the Area Manager. The Construction Engineer was proposing a turnout at a certain location, and it was maybe convenient for construction to build it at that site, but, in fact, he needed a more complicated design to facilitate delivery to an irrigation district or a municipal water company or a city water treatment plant. The Operations Manager would be the advocate for his client, i.e., the water user, and that in turn would get debated before the Project Manager, and a decision would be forthcoming on whether we put the turnout where it's more convenient or less costly or of greater benefit to the operations clientele or it was easier to build and didn't take as much design and was a position that was advocated by the Construction Engineer. Sometimes it went one way, sometimes it went the other.

Certainly there was a lot of give and take. Some of those issues never even got to the Area Manager or Project Manager at that time. The staff would work it out. We'd sit down and debate, and if it was a matter of a few dollars or it took another month to complete the design for a turnout, well, to the extent it was better for our water user client, generally we were able to convince construction guys to go in that direction.

Storey: Are you saying it would be staff to staff rather than staff to Construction Engineer?

Morton: It would be staff to staff. And if the construction staff was convinced that there was no reason to accommodate, they would elevate it to the Construction Engineer. Then on the other side, the environmental staff would elevate it through

the Environmental Officer, the Operations Manager, to the Project Manager.

Everybody had access to the Project Manager. The only problem is, the Construction Engineer's access was probably stronger. That part of the organization was graded higher. They would be the same grade as the Project Manager, generally speaking. Up until 1986, both the Construction Engineer and the Project Manager were GS-15s. All of the other managers or officers were 14s or 13s. The Construction Engineer, by virtue of his added responsibility and larger staff, was graded higher. Whether that gave any more weight to his recommendations, I don't think so. I think that generally most of the Project Managers I worked with listened to the 11s and 12s just as much as they'd listen to the Construction Engineers.

The Project Manager and Construction Engineer were graded the same until 1986

Storey: What happened in '86?

Morton: [In] '86, Bob Towles was reassigned from the role of deputy director, deputy assistant. What's Darrell Webber's title? Assistant Commissioner for Engineering and Resource?

Storey: Yeah, Assistant Commissioner: Engineering and Research.

Morton: And Bob was his deputy, and Bob was SES. So when Bob was reassigned to the project manager slot, he brought his grade with him, so it went from a 15 to an SES. The Construction Engineer was still a 15. The Construction Engineer is still a 15. Dennis Schroeder succeeded Bob Towles. He was also the deputy director, deputy --

In 1986 the Project Manager became an SES position

Storey: Assistant commissioner.

Morton: Deputy Assistant Commissioner for Engineering and Research. When Dennis came to Phoenix, he brought his grade with him, as well.

Storey: One of the things that I believe Andy Dolyniuk told me was that in 1978 the contract responsibility was shifted away from the Chief Engineer's office to the regional director's office. Did that have an effect on the way decisions were made here in the CAP office that you recognize?

Changes in CAP when the contracting responsibility went from the Chief Engineer's office to the regional office in about 1978

Morton: The way we did business changed, because the contracting officer was now several hundred miles away in Boulder City, Nevada. The Construction Engineer was no longer warranted.

Storey: Meaning?

Morton: Meaning he could not make modifications to contracts or award contracts. I think this came out of--in the seventies there were a lot of hue and cry about \$500 hammers and \$10 million toilet seats and whatnot that had been acquired by non-contracting personnel in the Department of Defense, and I think that moved into Reclamation during Commissioner Higginson's era. So the Chief Engineer and the construction engineers relinquished their warrants, their authorities to enter into contracts, and an independent contracting entity was set up.

Changes in the contracting process when contracting went to the regional office

The way it worked here is, it was set up at a centralized location in Boulder City, so the contracting officer, the individual who could enter into major construction contracts, was a non-engineer and was located several hundred miles away. So how we did business changed quite dramatically. When you ran onto a change condition in the field, the field engineer, the resident field engineer could not just go to the

contractor and say, "Take that out and we'll pay for it at X dollars a cubic yard," or, "Yeah, you're right, that rock is not supposed to be there. We need to remove the rock and bring the grade down to the specification requirement. You're authorized to blast and your unit prices are X dollars to blast and Y dollars to excavate after you blast."

The field construction engineer lost that capability, and in turn had to stop the contractor, had to notify the contracting officer in Boulder City that they had run onto a change condition, and to submit a technical analysis to the contracting officer. We learned how to use faxogram machines quite readily during that era. But rather than an observable change in field site conditions and a handshake, followed up by a contract modification, which was the typical way of doing business, now you had to prepare a technical analysis to describe what had occurred, to describe the limits of the change, to submit that to the contracting officer, to get the approval of the contracting officer to go ahead with the work. This could take a matter of hours or it could take several days. So that flexibility disappeared from the constructor/contractor relationship that had been established over seventy or eighty years that preceded that time period.

The process of bid opening, the process of analyzing bids, now you had a non-engineer, a non-construction person, who was the chair or foreman of the bid opening board. That individual had the responsibility to certify that the bids were acceptable, that they were responsive to the solicitation. Previous to that time, the Construction Engineer did that. The Construction Engineer could say, "I've looked at all of these bids.

There's five bids, and these four are non-responsive. This person, even though he may have the third-highest bid, we'll award the contract to him."

That used to be within the purview of the Construction Engineer, and there was always this concern that the Construction Engineer was overstepping the bounds of his authority. His warrant said he would award the contract to the lowest bidder, but there was always a question whether that was truly the lowest bidder, whether these other bidders were responsive or non-responsive. But the Construction Engineer's word was law.

There was a concern, I think, that construction engineers and contractors were too close, that there was the potential for some fraud or some ethical questions that would arise out of this relationship. I can't say that I ever saw that here on this project. I think that our construction engineers were as ethical as any non-construction staff. But there was always this concern that all contract actions should take place with an independent third party, and so the Construction Engineer didn't control the contracting officer, the project manager didn't control the contracting officer. The contracting officer was an independent arm of a centralized contract authority that was granted to the agency.

From a practical sense, I think that the contracting officer still today reports to Kathy Gordon's organization in the Denver office, the Reclamation Service Center. The performance of the contracting officer is evaluated administratively, but from a technical perspective, the Area Manager, the Regional Director, the Construction Engineer do not exercise any technical control or authority over contracting officers. Contracting officers are totally independent of the line authority within the organization.

Storey: Were there any problems that developed other than it took longer to respond to field situations? Or any improvements?

Morton: I'm not really qualified to answer either direction. I know that there seemed to be a lot more boiler plate that went into the solicitations and into the contracts. Just the size, as an outside observer you could see the substantial increase in the size of a solicitation or a specification before and after. You'd have a half an inch before and you'd have an inch and a half after the changeover took place.

It became a significantly more difficult or time-consuming regulatory process to administer contracts. For example, we still have contracts now that are five and six and seven years after substantial completion that have yet to be closed out for one reason or another. We may be quibbling over \$10,000 on a \$5 million contract, and they still have to be resolved. Some are labor compliance issues, some are certifications or representation issues, some are, for one reason or another, the contractor has concluded it just isn't worth the effort to properly close out the contract, so I'm not going to sign a final voucher, and a contract still sits there. The funds are obligated. We're carrying them on the books as an obligation, but we haven't been able to close them out.

We have many contracts which have not been closed out because of the difficulties in the contracting process

Storey: Well, once again we've gone almost two hours. We're two minutes off, I think, three minutes maybe. So I'd like to ask you again whether you're willing for the information in these tapes and the resulting transcripts to be used by researchers.

Morton: I certainly agree to that.

Storey: Good. Thank you.

END OF SIDE 2, TAPE 2. JUNE 17, 1996.

BEGINNING OF SIDE 1, TAPE 1. JUNE 18, 1996.

Storey: This is Brit Allan Storey, Senior Historian at the Bureau of Reclamation, interviewing Larry Morton in the Phoenix area office on June 18, 1996, at about ten o'clock in the morning. This is tape one.

One of the things that I'm interested in that was going on, and we've already talked about it quite a bit, actually, is the Navajo Powerplant. I think a question I didn't ask was, we were, in effect, buying over 20 percent of this powerplant. Were we investing the money in that, or were we just committing to purchase that much of the power?

Reclamation and its involvement with the Navajo Generating Station

Morton: No, we were making a capital investment, and it was coming directly out of our budget each and every year. Generally, that's why it took so long to really get CAP rolling is that the first increment of funding went to fund the Navajo Powerplant.

We entered into the Navajo participation agreement contracts in '69, I believe it was, and by '71 the Salt River Project, who was the agent, the entity's agent, the consortium's agent for the construction of the powerplant, had issued their first construction contracts. We were committed to paying, on the powerplant, 24.3 percent of the construction costs concurrent with construction, and because of our budgetary process on a fiscal year basis, we were unable to fund our share of the cost the first year. Fortunately, the framers of the participation agreement realized that there was a mismatch in their budget cycles versus the government's budget cycles and had made provisions for the other participants, the other five

Reclamation invested in the Navajo Generating Station, and the Salt River Project holds our 24.3 percent investment in trust

participants, to pick up the Federal share of the costs. I think in that first year it was a relatively small sum of money, less than a million dollars, I think, that they basically loaned to the Federal Government and then recaptured, I believe, out of the fiscal year '72 appropriations. So the first year or two, the level of appropriations was relatively small, less than \$10 million, I think, for '72 and '73.

But by 1974, construction was moving ahead quite dramatically. The government's share of the cost, 24.3 percent, amounted to about \$222 million, I believe, and that included both the powerplant and the two transmission lines, the western transmission line that went from Page to the Las Vegas area, and the southern transmission line that brought power from Page down to the Phoenix area. So \$222-223 million was paid out over the period 1972 through 1979 to Salt River Project or, in the case of the southern transmission system, the Arizona Public Service Company, and in the case of the western transmission line, the city of Los Angeles Department of Water and Power was the constructor for that transmission line, a 345-kV transmission line.

Those payments were made over that time period. The first unit went into commercial operation. It was a three-unit powerplant, each with approximately 750 megawatts installed capacity. The first unit went on line in '76, and then the second unit was '77, the third unit was '78, and then there was some minor cleanup work and finalization of the contracts that took place in '79. So the funding sequence was '72 through '79, with a loan in '71, so there was a nine-year construction period for that facility.

The title to the facilities, the share of the title was held in trust by Salt River Project. The

There were two power transmission lines associated with the Navajo Generating Station

United States did not get title to the plant. What we got was a right to use the power and an agreement with Salt River to hold the U.S.'s share in trust. So they're basically a trustee for the United States for the 24.3 percent of the plant that's in the United States.

Storey: For Reclamation, I would think this was sort of an unusual situation, where we were spending \$222 million worth of taxpayers' money, and we were used to controlling the quality of construction. Did that cause any problems within Reclamation or any discussions? And also, what did we do to try to assure quality, if anything?

Morton: I don't think that it really was an issue within the construction community within Reclamation. A coal-fired powerplant is not one of our fortes. Reclamation had no experience in that area. This was a unique situation, the one-time-only opportunity to obtain electrical energy at a relatively low cost.

Our involvement in terms of quality control or control of the budget or control of the expenditure of funds was pretty much limited. We had representatives on what is known as the E&O Committee, the Engineering and Operating Committee. We had two engineers that served on that committee.

As is the case with most multiple-owner powerplants, the constructing agent is the responsible party, but that agent is guided by a majority vote of the participants, and in this case we had the five participants. Salt River was the agent, and they're the ones that awarded the contracts. They're the ones that administered the contracts, oversaw the construction, managed the construction. They're the ones that employed the consultants that did the design. These were not

How Reclamation was involved in construction and is involved in management of the Navajo Generating Station

in-house designs. The designs were done out-house with consultants. All ten of the representatives, two from each of the participants on the Engineering and Operating Committee, had the opportunity to oversee and make recommendations, but that was pretty much the limit of our involvement, as was it for any of the other participants. Salt River called the shots, and they were responsible for the schedule, they were responsible for the design, and they were responsible to oversee the quality control and quality assurance of the construction.

I didn't really hear any hue and cry from Reclamation that they [Reclamation] needed to be involved. It was pretty much passed through operations. It was a financial operation. I mean, our involvement was primarily a financial involvement. We got the appropriations, and we passed the money through based on the schedules that had been established by Salt River and agreed to by the E&O Committee.

Similarly, there was a Finance Committee that audited Salt River's expenditures. There was a number of other committees that Salt River set up. One or two representatives from each of the participants sat on those committees, and the committees had a set area of responsibility. If two of the participants objected and three of them were in favor of it, the three of them controlled. If Salt River decided they needed some kind of pretreatment on the coal, that would be presented to the Engineering Committee. They would look at it. They would hear expert opinions from various consultants. They could bring their own consultants in if they had some problems with what was going on.

But within Reclamation, we never had any experience with coal-fired powerplants. So it was

kind of hard for us to say that we had any expertise we could bring to bear. Of course, that was in the era, I think, of the Chief Engineer, and I don't recall that there was any control requested or any oversight that the Engineering and Research Center brought to bear on that activity. I think it was pretty much a regional financial relationship, with some oversight from both the engineering and operating staff.

Storey: This was in the era right after [passage of] NEPA. Was there any NEPA involvement that you were aware of?

Morton: Oh, yeah, a lot of NEPA. The land that was involved, of course, was on an Indian reservation, so you had the Bureau of Indian Affairs involved. The water was coming out of Lake Powell. It crossed a short stretch of--the diversion area crossed a small stretch of the Glen Canyon National Recreation Area, so you had the Park Service involved. The Park Service was concerned about visibility as a result of emissions from the stacks. You had transmission lines that crossed various parts of the Grand Canyon National Park or were visible from either the Grand Canyon National Park or some of the national parks and monuments in southern Utah. You had BLM land that the transmission lines crossed. You had Forest Service land that the transmission lines crossed. So every [involved] Federal agency had some role in the NEPA process.

I think, if I remember correctly, there were four environmental statements associated with the entire project. The McCullough substation near Las Vegas, near Boulder City, was on BLM land, and I think BLM was the lead agency for that one. The Western Transmission Line and the Navajo

***NEPA and the Navajo
Generating Station***

***There were four
environmental statements
associated with the Navajo
Generating Station***

Powerplant, I believe, there were separate statements for each of those two features, and I believe the Park Service was the lead agency for those two statements. The Southern Transmission Line came through about four national forests in Arizona, and so the Forest Service, if I remember correctly, was the lead agency. And then every one of the other involved agencies was a cooperator or was involved in some fashion. If they had land or other other environmental values that would have been impacted or would be impacted by the undertaking, they were all involved in the preparation and the analysis that went into those statements. Yeah, NEPA was a big role.

Storey: Did that cause a lot of problems? Let me ask a different question first. Were you personally involved in doing any of that?

Morton: No, I was not involved. As a matter of fact, the Regional Environmental Officer was the lead participant from the Bureau of Reclamation. It was not an issue for the Phoenix office. It was an issue for--if I remember right, I believe John Peters was our Environmental Officer in Denver at that time. It was an issue for John. It was an issue for--I can't remember the name of our first Environmental Officer in the region, but he was involved. He was a former Park Service employee, I remember that, that we hired right after NEPA opened up--Al Jonez. Al Jonez and John Peters were the two Bureau people who were directly involved in the preparation of those documents.

I think, generally speaking, the documents themselves were actually done by consultants for the various power companies. They were

overseen by the lead agency, and then there was involvement by all of the federal agencies. I think we had two levels of involvement. One was as a participant and a user of the power. We were in the group of the power user community, and so we had some involvement in that arena.

But we also had some responsibilities in the area of the water resources. Cooling water was proposed to be returned to the lake, for example, and so there were concerns about contamination of the lake and the water of the Colorado River and the fact that we operated Glen Canyon Dam, and there were certain operating requirements that we had at Glen Canyon. Now that I think about it, I guess the Upper Region may have also been involved. Harold Sersland or one of the early environmental officers for the Upper Colorado Region was also likely involved in that aspect of it, not the aspect of--were we doing a good job from the power user, power consumer perspective, but from the Resource Manager perspective. The Upper Colorado Region was very likely a participant in those EISs, as well, at least the western transmission and the one for the powerplant itself, because those are in the Upper Colorado Basin, now that I think about it. So it wasn't a real issue for this office, per se.

Relative to concerns, I think that NEPA was still in its infancy, and if we'd waited another ten years, there would have been major, major controversies. But I think that, while we complied with NEPA, it was in its infancy. The regulations were still somewhat in a draft form. I don't think that they had then received final promulgation by CEQ. I think that there was a lot of sentiment to get on with this [power]plant, because it was obviously a needed plant in the Southwest. I think that there was some relief that the Federal Government had found another alternative and

NEPA and the environmental community in relation to the Navajo Generating Station

had backed away from the dams, from the Colorado River dams, Bridge Canyon, Marble Canyon Dam, and had agreed on an alternative.

I think that there was some endorsements that took place when the project was authorized and we moved away. The Sierra Club and the National Audubon Society kind of endorsed that approach to obtaining power for CAP, because they felt like the dams, the Colorado River dams, the Grand Canyon dams, would be much more sensitive and much more impactive to the natural ecological systems, and so they couldn't hardly go back on that endorsement. I think that there was some political correctness there, that they'd won the victory in that there was no Colorado River dams, and there was some tacit endorsement to coal-fired powerplants using low-sulfur coal, providing jobs for the Native American community on the Navajo Indian Reservation. So there was this endorsement that did take place during the legislative process, and I think when the EIS was written, it was difficult for them to politically oppose the powerplants.

So the opposition, to the best of my recollection, was not a serious one. There were concerns, and there were future requirements for commitments that were embodied in the permits and so on that were granted. Of course, that gave rise in 1991, '92, somewhere in that time frame, when the government agreed to--all the participants agreed to participate in putting scrubbers on the emissions.

We're in the process right now of a half-a-billion-dollar retrofit of the Navajo generating station with wet scrubbers, but that came about as a result of the commitments that were in the environmental impact statement and the commitments that were associated with the permits that

Commitments in the environmental statement are resulting in substantial retrofitting of the Navajo Generating Station

basically said, if visibility becomes a problem, we'll examine the potential, and if deemed appropriate, we will agree to install systems that will reduce emissions.

Storey: Let's bring that story up to date, then. Who started saying, "We've got visibility problems"?

Morton: Our friends with the Park Service. And they did! As now they're looking at the situation in the Grand Canyon and in the national parks and monuments of southern Utah. There's still a lot of questions on whether the visibility problems are as a direct result of the Navajo Generating Station. I think now everything I've read recently in the newspaper would indicate that it's people problems. It's automobile emissions, it's pollution that moves from the Phoenix and Los Angeles and Las Vegas airsheds that are the culprit. It's the visitors to the Grand Canyon and the aircraft that flies in the Grand Canyon that produces the preponderance of the visibility problems that now exist in the canyon.

Visibility at Grand Canyon National Park and the Navajo Generating Station

That was an argument, certainly, that was put forward in the late '80s and early '90s nineties by the participants. Each side had their battery of experts that testified in the lawsuit. But it was a stipulated settlement, and the Salt River Project and the other participants have lived up to that stipulation. The retrofit of the plant is almost as difficult a job as building the plant in the first place. I mean, we're talking about a seven-year construction program. We're in the fourth year now. I think by '98 the first unit will be on line, and by '99 the other two units will be on line with the scrubbers.

Storey: A lawsuit, you said.

Morton: Yeah, there was as lawsuit.

Storey: Brought by whom against whom?

Morton: You know, I'm at a loss right now. I'm thinking that it was by the United States against the Salt River Project and the Navajo participants. It seems to me that that was the case. Certainly the Park Service. I remember the testimony of the Park Service experts. They had a number of consultants. They had some experts on their staff. I had the opportunity to sit at a couple of public meetings that were held here in Phoenix, and it seems to me that it was the Park Service and the Secretary of the Interior that brought suit. I could be wrong on that, but I suspect that it had some Federal participation.

Storey: I recall somewhere that the participants were put on a course that was going to be very, very expensive, and they sort of stepped back and said, "Wait a minute. Let's do it a different way." Am I thinking correctly?

Morton: I'm not sure what relief the plaintiffs asked for in the suit, but it could have taken the position of shutting the plant down. It could have gone to that set of dire consequences. And you're right, the participants said--well, as is the case with many lawsuits like this that are brought on environmental grounds, the judge frequently, it seems to me at least, tries to get the parties to reach some accommodation. I'm sure that the judge was pushing for settlement, because in the worst case he might have to rule that the Navajo Powerplant would have to be abandoned and the land restored, and that would have been a very expensive process, not only an expensive process,

but potentially a harmful process in terms of providing electrical energy to the Southwest.

So there was a stipulated settlement. I mean, there was no ruling by the court. It was a situation where the parties got together and did agree on a process, and Salt River was very instrumental in negotiating that agreement. So there was a stipulated settlement where the participants agreed to install a certain level of emission control, and the adopted strategy was wet scrubbers, so the exhaust from the stacks will be filtered through a wet scrubber system.

Storey: And hopefully remove a lot --

Morton: And hopefully remove a substantial portion, oh, 98 percent or something like that, of the particulate that adversely affect visibility. But even now today, the amount of particulate, apparently, that emanate from the Navajo plant . . . when the Navajo plant is down for service or repair, the problems are still there, and it's an entirely different kind of particulate matter, that generally comes from automobile exhausts, not from the burning of coal. So the preponderance of the visibility problems, as time has gone on--you know, we've got another seven or eight years of data that has been collected since the negotiations had originated [resulted] on some kind of settlement. The Park Service--not only the Park Service, but the entire involved community in northern Arizona and southern Utah is looking at other strategies to improve the situation. But short of stopping cars and--

Storey: Closing down L.A.

Morton: And closing down L.A., or telling the wind it's got to blow from east to west rather than from west to east, I don't know what else we can do about it.

Storey: The powerplant issue's tied to another issue I'm sort of interested in, and that's the pumping issue, and the management of the project, which at first was in the hands of Reclamation. Were there issues involved in the power production and when the power production could be used to pump, that caused Reclamation management issues? Am I asking a clear question?

How the Navajo Generating Station is tied to Reclamation's need for power to pump water for the Central Arizona Project

Morton: Well, why don't we try and dialogue it along that. The Navajo Generating Station operates to meet the load patterns of the southwestern United States, the participants' load patterns, whether that be the City of Los Angeles, or Southern Nevada Power, or Nevada Power, and Arizona Public Service, and Salt River Project. I mean, it operates to meet their load patterns.

Typically, the load patterns for the Central Arizona Project are out of sync with the load patterns for everybody else. In other words, our demand for water in the Central Arizona Project is at the same time the demand for power is high for cooling in the southwestern United States. In other words, we need to pump in the summer. We need to deliver water in the summer. That means in order to size the powerplant, you would need to have a very large amount of energy available in the summer, with a substantial amount of excess energy in the winter.

How benefits of the power generation at Navajo Generating Station are maximized

One of the keys for the Central Arizona Project was the fact that a regulatory storage reservoir reverses the context of our demand. In other words, if we can--to use a storage battery analogy. If we can charge our batteries during the winter by putting water into storage in the service

area, then we can create a high demand [from Reclamation] for energy in the winter and a low demand for energy during the summer. That, in turn, can make a more uniform load pattern, establish a size for the powerplant--that is, not a peak plant, but a rather uniform load pattern. And when there are surpluses in the summer, if we can create an availability of energy during the summer, we can get a much greater value for that surplus energy--surplus to CAP's needs. We can get a greater value for that by having it deliver--

END OF SIDE 1, TAPE 1. JUNE 18, 1996.

BEGINNING OF SIDE 2, TAPE 1. JUNE 18, 1996.

Storey: We were getting a greater value for our power by delivering it in the summer.

Morton: So the bottom line was that Orme Dam, or a suitable alternative to Orme Dam, could very readily fill that role. So we would pump Colorado River water all winter, fill up the reservoir, and then during the summer we could slack off on our pumping. We could make available two-thirds or three-quarters of our entitlement for sale during that period and use relatively little, one-quarter or one-third of our entitlement, for other pumping needs within the project service area; for example, to move water down to Tucson or to move water into Pinal County. But the bulk of the water had already been moved through 1,200 foot of lift from the Colorado River to Orme Reservoir or to an alternative, and that's another story.

But as we developed an alternative to Orme as a result of the Water Projects Review in 1977 and the recommendations of the Carter Administration to delete Orme from the project, eventually over time an alternative was developed and built, the New Waddell Reservoir, and it fills

Why we pump water in the winter and store it to reduce electricity demands in the summer

that role today. It tends to even out our power requirements and it makes a power management opportunity for the participants in the Navajo Powerplant. And, in fact, by contract, Salt River now buys all of the excess power from the project at a reasonably good price, but we also make a reasonably good profit.

Storey: Good. Sort of related to this is the question of when we can pump water and how that affects the operation of the Colorado River. And then I want to move on after that into the issue of fish getting into the canals.

Morton: As we've discussed earlier, CAP's entitlement is limited by the residual of the 2.8 million acre-foot of allocation that comes to the state of Arizona. So if 1.3 million is being used on the Lower Colorado River, there's 1.5 million available to CAP.

We have the capacity in our system to move from the Colorado River into central Arizona 3,000 cubic feet per second. That, in volumetric terms, if you run 3,000 cubic feet per second, 365 days a year, 24 hours a day, that is about 2.2 million acre-feet. So we have more capability to move water on a normal year than we have entitlement for, and so that gives us the opportunity to move more water in the winter than the demand is, and then slacking off on our diversions from the river during the summer and pump maybe only 500 or 1,000 cubic feet per second as opposed to 3,000, which makes two-thirds of our power available for commercial sale during the summer, because then we can make up the other 2,000 cubic feet per second, or even 2,500 cubic feet per second, available out of our

How CAP is affected by and affects Colorado River operations

The relationship between capacity of the CAP system and water entitlement of the CAP

regulatory facility, which in this case happens to be Waddell Reservoir. So that's the management scheme from a CAP perspective.

Management from the other perspective is, how does the Secretary and the Regional Director, as the Secretary's representative, operate the river to meet the demands placed on it? Generally speaking, CAP is once again a little bit different than everybody else. Other entities along the river, whether it be the Powell Irrigation District at Blythe or the Imperial Irrigation District or the Coachella Irrigation District in southern California or the Yuma area projects, the Gila Project, the Yuma Project in Arizona, or it be the Colorado Indian tribe, their demands, they have no regulatory facility within their systems, and so their demands have to be met on a real-time basis. Their demands are generally for agriculture, and, of course, the middle of the summer is going to be the time at which most of the water is needed.

That works out real fine, because one of the things we have within the system is three powerplants--the Davis, Parker, and Hoover Powerplants--are situated such that the releases through those systems can generate power, hydroelectric power, and still meet those demands. When, of course, is the maximum requirement for power? In the middle of the summer! So they tend to fit very nicely.

CAP, on the other hand, and the Metropolitan Water District of southern California both have regulatory storage within their systems. CAP can peak its operation because it has more capacity--in other words, 2.2 million acre-feet a year--more capacity than it has entitlement, 1.5 million acre-feet per year. So it has a lot more flexibility in its system.

Operating the Colorado River to meet the demands placed upon it

Similarly, the Metropolitan Water District in southern California, its entitlement, by contract, is 550,000 acre-feet. Its system has the capability of delivering about 1.2 million acre-feet, so it has some flexibility. But recent history has been, since Arizona is not using its full entitlement--or Nevada, for that matter, using its full entitlement--the basin has yet to achieve the 7.5 million acre-feet that's been allotted to the entire basin. Therefore, southern California and the Metropolitan Water District can avail itself of that unused Arizona and Nevada entitlement. So from a practical sense, the Metropolitan Water District has operated its system at full system capacity for a number of years. About the only time they don't is when there's a surplus of water in the Los Angeles Basin, which occurs on a very infrequent basis. Sometimes their other contracts require them, for example, to take water from the California Water Plan or from some other source, in which case they tend to back off a little bit on their Colorado River entitlement, so they might only take a million acre-feet.

It's been a long time in coming. The [Lower Colorado River] Basin is just about now at the point of achieving a balance. In other words, with the excesses that southern California or Metropolitan Water District are taking, Arizona is sneaking up now on about 2.3 out of the 2.8, or 2.4 out of the 2.8. Southern Nevada has an entitlement to 300,000. I think the projection this year is about 240 of the 300,000 will be used in southern Nevada. So the capability of the basin to use water is probably in excess of the 7.5 million acre-feet that the basin is entitled to use. The reason for that, of course, is the Metropolitan Water District has been taking 500,000 to 600,000 acre-feet of Nevada and Arizona's unused entitlements. So now the Metropolitan Water

*CAP and Metropolitan
Water District operations
using Colorado River water*

District is going to have to curtail the amount of water they take, because Arizona and Nevada are beginning to move into that range of usage that exceeds Metropolitan Water District's capability to take water. That has some influence on how the river is operated.

Generally, as we've talked before on river control and river operations, the water orders are, they look at a year in advance. They get projections from all of the contractors a year in advance to know what the potential need is, and then the Water Master or the Regional Director identifies whether this system's in balance. He has to examine the watershed, the upstream watershed, to determine where the reservoirs will be, whether there will be a potential for a flood control operation, whether there will be a potential for a spill, whether, for example, the Upper Colorado River Basin has a substantial snowpack that might yield in excess of a normal supply in that year. We're currently looking at about, I think, 108 percent of normal for the runoff for the basin. There's certainly the potential that, if it's greater than that, there will be some spills of the system, and if there are spills in the system, then the Regional Director, acting on behalf of the Secretary, can declare a surplus condition. If that occurs, then whatever the surplus is can be diverted by the allottees and can be used. So long as it can be beneficially used, then they can divert that water.

This year, we're kind of on the cusp of coming up to a point where the reservoirs are nearly full. If we had had a snow pack of maybe 125 or greater percent of normal, we would have been in a situation, probably, of declaring a surplus, because the potential would be very high for a spill from the reservoir system. We're just a little over 100 percent of normal. You've got to

Colorado River operations management begins a year in advance

Declaring a surplus on the Colorado River

balance the call, and I just don't know where we are in that process, whether we're going to go ahead and deliver surplus water this summer or not. It's six of one and half a dozen of the other. It's a pretty close situation to call. Next year I suspect that if the winter snowpack is pretty extensive within the Upper Basin, I suspect we will probably declare a surplus, in which case we can have consumptive uses of 8 million or 8.5 million acre-feet potentially within the Lower Basin.

Storey: Am I understanding the system correctly? Glen Canyon is there in order to store the water which is going to be delivered for the 7.5 million acre-feet a year of commitment? Plus half of the 1.5 million acre-feet of water for Mexico. And Hoover, catches Lake Mead, catches the water in order to distribute it to the Lower Basin.

Morton: It becomes the reservoir that regulates the flows downstream. Rather than it all being released at Glen [Canyon]. There's no requirement on Glen Canyon or on the Upper Basin to release it consistent with the downstream demand cycles or variation in demands--that's what Hoover does. Hoover is designed and is operated to meet the downstream water demands, among other things. I shouldn't say that's the only thing. There [is] also responsibility for navigation, flood control, power generation, but those are all secondary to the delivery of water. The primary purpose of Hoover in the Boulder Canyon Project is to regulate the flows of the Colorado River to meet the water demands of the contractors for that water.

How Glen Canyon and Hoover Dams are used to operate the Colorado River and meet Colorado River Compact commitments

Storey: One of the issues that I'm very interested in, and it seems to be real complex, is this "surplus" issue. And we've talked about it once before. But as I understand it, Hoover will hold, or "drink" if you wish, three to four years of the flow of the Colorado River. That means that there are several years of 7.5 million acre-feet stored there, and you have Glen Canyon up above supposed to release 7.5 [million acre-feet] a year--over a ten year average its supposed to be 7.5. If I were California or somebody who needed a lot of water, I would be saying, "You've got three years of storage in Hoover, and anything above 7.5 is a surplus." What is Reclamation and the Secretary's view of this as his responsibility as watermaster--the Secretary's. Why isn't he saying everything is surplus above 7.5 [million acre-feet]?

Morton: Well, as we've discussed, there's over 60 million acre-feet in storage in the Colorado River. The capacity is there to store approximately 60 million acre-feet.

Considerations of the Secretary of the Interior in determining whether there are Colorado River surpluses

Storey: Both basins?

Morton: In both basins, right, from Pathfinder in Wyoming to Flaming Gorge on the Green River in Utah.

Storey: I think Pathfinder's on the Platte system.

Morton: You're probably right. I can't remember which one it is up above Rock Springs, Wyoming.

Storey: I don't know. I don't remember. Flaming Gorge is over there.

Morton: Yeah. Well, Flaming Gorge is downstream from Rock Springs.

Storey: Yeah. I don't know that one.

Morton: There's another reservoir upstream of Rock Springs. Lyman and Seedskafee are up there. I can't remember what the name of the dam and reservoir is.¹ But anyway, it goes from the upper watershed of the Green and the Yampa and the Gunnison and all the rest of the tributaries that contribute. Of course, the major, Navajo on the San Juan, but the major reservoirs being Glen Canyon. Of the 60 million, over 50 million is in Glen Canyon and Hoover. That gives you some perspective. And then all the other reservoirs, I don't know, ten, twelve, fifteen, I don't know the number, but they make up the remaining 10 million acre-feet, roughly.

The problem is that the Secretary has a responsibility to deliver water, as the watermaster, to deliver water, basically in perpetuity, and he has to be fairly conservative, because if he delivers too much water today, we could go into-- and historically we have--a twenty-year drought cycle, where the basin will only produce 10 million acre-feet a year or less. If that occurs, those reservoirs will be drawn down, and over twenty years, even if you were full at the beginning of that twenty-year drought cycle-- which has happened historically. From 1929 to 1956, I think, we were basically in that kind of a cycle, and I don't think we averaged more than about 13 million acre-feet through that whole cycle.

But there are shorter periods of less than 10 million acre-feet average, with a minimum annual of about 2.8 million acre-feet, I think. So the Colorado River is highly variable and historically has been subjected to long-term shortages or drought. So if you took that

The Colorado River Basin has historically been subject to 20-year drought cycles

¹ The Eden Project, upstream of Flaming Gorge contains two dams. The Big Sandy Dam which impounds Big Sandy Reservoir, and the Eden Dam which impounds Eden Reservoir.

60 million acre-feet and you divided it by twenty years, let's say, well, that's only 3 million acre-feet a year. And if your runoff only averaged 10 million acre-feet over that period of time, you could drain your reservoirs, and you'd still only be able to deliver, including other consumptive uses like reservoir evaporation, you are only going to be able to consumptively use 13 million acre-feet.

In other words, you take 3 million acre-feet a year out of storage over that twenty-year drought period. You'd have 10 million acre-feet of natural runoff. That gives you 13 million acre-feet. Your consumptive use, just in river losses and reservoir losses, evaporation, evapotranspiration, that's about 2 million acre-feet of that 13. So that leaves you with 11 million acre-feet, and if the Lower Basin is getting 7.5, and Mexico's getting 1.5, that's 9. So that only leaves you 2 million acre-feet for the Upper Basin to drink, and they're at about 4 or 4.5 of beneficial consumptive use today in the Upper Basin. They're not going to be very happy about having to curtail their use of the water, stop all of the agriculture and industrial activity, stop delivering water across the Continental Divide to Colorado Springs and Denver and Fort Collins and Boulder. If the Upper Basin is going to live up to their responsibility to deliver water to the Lower Basin, they're going to have to curtail the use of water someplace in the Upper Basin if the Secretary makes a mistake today and starts declaring a surplus when there is not a real legitimate surplus. Even though he may have 55 out of 60 million acre-feet of storage, if he says, "Well, I think we can declare a surplus, and we're going to deliver an extra 2 million acre-feet to the Lower Basin and to Mexico this year," twenty years down the road, that 2 million acre-feet may come out of Denver's hide, or somebody else in the Upper

Basin is going to potentially be the recipient of a shortage twenty years down the road.

That's the kind of thing that the Secretary has to make a judgment on. So that's why I say we have to be pretty conservative and feel pretty comfortable that in fact there is a legitimate surplus in the Basin and that if we don't begin making deliveries in excess of the 7.5 in the Lower Basin and the 1.5 million to Mexico, if we don't start doing that, then we're going to have to spill water from the system, with potential adverse effects, flood damage effects, and so on. So that's the trade-off that you have to go through.

We've got almost 100 years of hydrologic record. The hydrologic record for the Colorado River goes back to 1896. The Bureau has adopted as its standard 1906, even though there are gauging records that go back, pretty good records I think, that go back to 1896. We've established, for purposes of our analysis, 1906 as the initiation of historical data, so we've got 90 years of record that we rely on in our analyses. Our studies are open to all the basin states. The responsible water resource agency in each state looks over our shoulder as we run these. They come up with artificial hydrology, stochastic hydrology. They have the availability of the models that we use. I don't know about Upper Basin states, but I know that the Colorado River Board of California and the Arizona Department of Water Resources have used our models and have experimented with their own models to convince themselves that the judgments and the decisions that are being made by the Secretary and the Regional Director won't adversely affect their future entitlements. I suspect that the Upper Basin states do the same thing, because they've got a very significant stake.

How Reclamation uses the hydrologic record in modeling the Colorado River

So the bottom line is, there's a lot of scrutiny. There's a lot of dialogue with the water resource agencies in each state. The state engineer's officer, or whoever within the state is responsible for evaluation of water resources, is the point of contact for consultation. The compact requires Reclamation and the department to consult with the governor and the responsible technical agent for each state, and we do that on a regular basis. The decision certainly is not made in the back, and the decision is subject to feedback and consultation.

I would think that it's probably one of the most debated decisions every year on how the river is going to be operated. One of the most debated decisions that's made in any kind of water resource management scheme anywhere in the world, just because the supply is variable, there's a lot of reservoirs that have to be operated, there are secondary effects of that operation. They can be economic. They can be ecological. They can affect things like rafting and beach erosion and beach stabilization and beach buildup and in the Grand Canyon. All of those decisions have a lot of spinoffs, so they're not made lightly and they're not made without a lot of forethought and a lot of analysis.

Storey: That's interesting. It's hard to understand the way the system works sometimes.

Yesterday we were talking about the environmental statements that were being done in the early and mid-'70s and that you were working on a lot of the time. In '77, then you became the chief of the environmental branch. But before that, in 1976, Teton Dam failed. Could you tell me how the people in the office here reacted to the failure of Teton Dam?

Morton: Well, I'm kind of at a loss on that one. Subsequent to that failure, a lot of our staff went up there on the relief program, and, of course, we watched all the newsreels. I think probably shock, disbelief. It was something we couldn't envision happening, possibly. It just had never entered anybody's mind that a catastrophe like that would occur, for whatever reason, the cause and resulting devastation. I don't know of anybody that had been directly involved that was in the Phoenix office at that time, but like I said, a lot of our staff was put on temporary duty and went to Teton and dealt with the relocation and the claims that resulted from the failure of the dam, tried to assist the people who lost their life and property and so on.

It was kind of a situation that was something you watched on television and had a lot of empathy for, but it didn't directly affect us, I guess is what I'd have to say. It wasn't an issue. None of our staff had been involved in the construction, so there was no personal ties to it. I suspect that the Engineering and Research Center and people in the regional office in Boise were much closer to the situation, much more personally involved. It was more like any other catastrophe, an Oklahoma City bombing. It didn't personally affect us. It was just a horrible national news experience that we had to live through. There was a lot of disbelief, a lot of sadness.

Storey: Were there any effects of the failure that reached to CAP through the various repercussions that were going on that you could identify?

Morton: Certainly our quality control was intensified, I guess I would have to say, the types of tests, soil

How Phoenix staff reacted to the failure of Teton Dam

Effects of the failure of Teton Dam on work on the CAP

tests that we underwent. We did find that we had some problems. Unbeknownst to us, we had--

END OF SIDE 2, TAPE 1. JUNE 18, 1996.

BEGINNING OF SIDE 1, TAPE 2. JUNE 18, 1996.

Storey: [This is tape 2 of an interview by Brit Storey] with Larry Morton on June 18, 1996.

You were saying we found dispersive soils in our canal embankments that we didn't know about. What are dispersive soils?

Morton: You can compact soil and it kind of liquifies and disperses. It moves. It doesn't stay in its compacted form.

Prior to Teton, there were a series of tests, a suite of tests, that one did for earth embankment types of structures. We [here in Phoenix] didn't have any higher structures like Teton Dam, of course. Our highest structure was Reach 11 dikes, which maxed out at about 28 feet. But, following Teton, the Denver office materials laboratory, as well as the entire profession, reexamined the types of tests that were done on soils for embankments for fills. There were additional tests that were devised, and that was one of the effects on us down here was that by 1978 this new suite of tests was devised, and we'd already built a lot of canals--Granite Reef, Salt-Gila, and I think we were probably working in Reach 3 of the Salt-Gila aqueduct, and lo and behold, we became aware, through, I think it was something called the pinhole test, and don't ask me to describe it because I have no idea how it works. But this new suite of tests that we were directed to run on soils, on earth materials, demonstrated that we had a dispersive soil problem. We went back and looked, and lo and behold, some of our existing

How new tests developed as a result of the failure of Teton Dam resulted in changes in CAP

embankments had this type of soil in it, and we didn't know that.

But that was one immediate impact, was that research into soil erosion and soil movement intensified, and, in turn, the types of tests that were performed prior to construction was changed. And so when we specified a certain area as a borrow source for an embankment, that borrow source was tested, and now we had a whole new suite of tests that was performed on that material. So some of what we would have considered in 1975 as good quality material for embankment was disallowed because it failed some of the tests by 1978.

That was one thing. I think another situation was, we looked a lot more closely at some of the facilities that had been previously constructed. They had sat there for a number of years, or were going to sit there for a number of years, and so we went back and reinspected those facilities. We found, for example, that our assumptions on the Reach 11 dikes were probably not too good. We found that we had some desiccation. The embankment dried out, and when it dried out, cracks formed in the soil. We had to go back and do, I wouldn't call it extraordinary maintenance, but certainly we had to go back and redo the surface of the dikes, because there was a lot of desiccation that was going on.

Some of our sister agencies, like the Soil Conservation Service and the Corps of Engineers, who had similar dikes here in central Arizona, they had the same problem, and they went back. The Maricopa County Flood Control District, they had a number of embankments that suffered the ravages of Arizona's high temperatures. I think we all went back and looked at things that had been built and had sat there for ten years, in the case of CAP, and sat there for twenty and thirty

years, in the case of some of the early Soil Conservation Service and Flood Control District dikes, and found that we all had this problem. There were a number of methodologies developed, cooperatively developed--pumped slurry, resurfacing of the dikes, a lot of different types of maintenance that were performed on these facilities.

Certainly, the designs became more rigorous. There was additional peer review in the Denver office on our designs. That generally resulted in an extension of the design times. I think that was one impact that we were seeing. It took longer to move from concept to design to construction because there were additional levels of review, technical review, peer review, that were undertaken. We had to perform more tests on the construction materials that we were dealing with here in Arizona. Those were the primary things, I guess, that we witnessed.

I guess probably in terms of the construction management, if I remember right, the number of density tests per lift were increased. The depth of the lift was decreased, so as you put additional soil on your embankment, you had to make sure it was more closely allied with the tolerances in terms of compaction, so we ran more compaction tests than we had previously. The materials, rather than a 6-inch lift, we would go to a 4-inch lift in some instances. So it took more work to create the same type of facility, so that the cost went up. The time frame to build something increased slightly as a result. So I guess those were probably the things that I recall that came out of Teton was: more review, more testing, closer quality control, better quality control.

Storey: Yesterday we talked about doing the environmental statement for the Granite Reef aqueduct. Construction, I think, began on that in '73, as I recall, and I'm wondering what kinds of issues they ran into as they constructed that aqueduct. Do you have any knowledge of that?

Morton: Well, had a lot of different issues, and I'm not sure in which arena we want to delve on this one.

Construction issues on the Granite Reef Aqueduct

Storey: Each of them.

Morton: Well, some of the issues were the people who worked for us issues. It was 190 miles from the Colorado River to Phoenix, and generally there was no living facilities, no quarters, no infrastructure. So when we did the environmental impact statement, we thought we were going to situate our construction work forces and contractor's work forces at some of the locations en route. In other words, there would be a settlement at Parker and there would be families at Parker, and there would be a settlement at Bouse and somebody would build a trailer park and there would be a need for infrastructure for schools and shopping, grocery store, whatever, general store, and that there would be some economic activity. That was kind of what we documented in the EIS, three or four way stations from Parker to Phoenix, where a centroid of population would move into, and all the services associated with that population would be created at that location.

Issues for Reclamation employees working on the Granite Reef Aqueduct

We expected economic activity and settlement development along the line of construction

As it turned out, it didn't happen that way. Workmen, Reclamation staff, got in their pickup trucks and their campers and went out there and slept in the campers and didn't take their families and came back to town every weekend. So what we envisioned in the environmental statement and what we identified as potential impacts on Parker

and Bouse and Vicksburg and Buckeye and some of the other intermediate points along the canal never really materialized. I think that a lot of the workmen, for the benefit of the job and for the benefit of their families, bore a burden of not being with their families and not having civilization around them. I mean, these were pretty remote situations that they found themselves in.

That was one big thing in my mind that really stuck out, not so much as a problem, but as an outcome of the construction, was that these workers subjected themselves to pretty harsh living conditions. I mean, no air-conditioning in the summer and 110- or 115- or 120-degree work conditions, and it seems like they tended to relish that. It was a challenge. It was a different kind of challenge than, perhaps, building a Hoover Dam or a Glen Canyon Dam, but it was nonetheless a major challenge in terms of the social well-being of the work force.

We had some experimentation, some new construction techniques that didn't pan out, or if they did pan out, they were pretty expensive. Buckskin Mountains Tunnel comes to mind. We had a 22-foot diameter tunnel that we used a tunnel boring machine to construct. Twenty-two-foot diameter was not anything new. TBMs had been built to greater sizes. I think 26 at that point in time was probably the biggest one, so we were a little bit smaller than that. But we were at 6.8 miles, and the combination of the diameter and length was unique. It was right on the cutting edge of technology at that time.

Storey: For a tunnel boring machine.

Problems that arose during construction of the Buckskin Mountains Tunnel

Buckskin Mountains Tunnel was unique in terms of diameter and length combined

Morton: For a TBM, the combination of length and diameter. We used a segmented liner that was installed immediately behind the cutter head of the TBM. The circumference of the tunnel was formed by four segments, a quarter of a circle, and those were erected within the framework of the trailing device behind the TBM, and that prohibited you from backing the TBM out. As you erected this liner behind it, it now presented a barricade of 18 inches of concrete on either side. So the TBM was boring at one diameter, and you had 9 inches of concrete now on either side around the full circumference, so that you meant you couldn't back the thing out because it was 18 inches smaller in the tunnel behind you than what the head of the machine was, so you couldn't back it out.

Storey: There was only one way to get the machine out.

Morton: There was only one way to get the machine out, and that was to drive it all the way. As a matter of fact, the tunnel started at the outlet and went to the inlet, so it was going upslope and it was headed towards the inlet end of the tunnel rather than--in other words, going upstream. So the only way out was to drill all the way to Lake Havasu. We started back at--I can't even remember the name of the wash now, but started at the back end, the downstream end, at the exit of the tunnel.

We got in several miles and found that the compressive forces of the rock that we were boring through were greater than what was anticipated. It got stuck. We had to bring in--or I should say the contractor, Shay [phonetic], brought in additional hydraulic jacks and expanded this capability so they could put more force on the head of the cutter to cut through the

***Tunnel boring machine in
the Buckskin Mountains
Tunnel becomes stuck***

rock that was stronger than what we'd anticipated when we did our drilling to test that rock.

We got a couple miles farther. That probably took three or four months to retrofit the TBM so that we could overcome that higher strength rock. We got in a little farther, and we ran into an area that was fractured. The rock, rather than grinding it up into small pieces, broke off in big chunks. The TBM rotates and grinds up, the face of the boring machine is ground [grinds the rock] up into small chunks or fine powder and then transported to the spoil area by a conveyor belt.

Basically what happened was, these big chunks would fall off the face that was being ground and lodged at the bottom of the mole, or the boring machine, and couldn't move, locked itself up, because big chunks of rock were falling out of the face of the bore. So they removed, I don't know, ten or fifteen segments behind it so they could back off and create an area that workmen could work in. The workmen would go through into the face of the TBM, and that created a whole new front on the tunnel boring machine. The original boring machine had about, I believe it was, a 14-inch exposure to the cutter head, so there was about 14 inches of cutter head always in motion, sticking out in front of the face of the mole. They welded a whole new face on the front of the mole such that there was only about 3 inches, so nothing would fall out of the face of the bore larger than a 3-inch material, which they could overcome. So that took almost a year to get through that area.

Then there were instances where we just had mechanical breakdowns and so on. The original schedule for the Buckskin Mountains Tunnel, I think, was delayed about eighteen months, just because there were these unforeseen

Fractured rock causes tunnel boring machine problems

situations that occurred, changed conditions. I guess that would probably be the best way to describe them, just changed conditions.

Storey: Was Reclamation responsible or was the contractor responsible? How did this work?

Morton: Well, I think that the contractor, between modifications and change conditions, I think we paid him an additional \$4 million, and then he had about a \$30 million dollar claim and I think he recovered about \$5 million on that claim. I think the bid price, if I remember right, was about \$54 million for that tunnel, and I think we ended up paying about \$63, \$64 million, something like that. Between modifications for change conditions and settlement of claims, I think we were \$8 to \$10 million over the original bid price.

As I said early on in our discussions, we did all of our tunnels first. We did all of the siphons first, because they could be constructed and then we could walk away from them. We could essentially abandon them and not cause any problem. In other words, there was no danger to the public, and the facilities, we thought at least, would stand in place until water was available to be delivered. It worked on the tunnels, but later on we found out we had some insidious corrosion going on in the siphons that we were unaware of. That was a 1990 finding, and we're still repairing the siphons as a result of that.

We built seven siphons. We built three tunnels. We built the Reach 11 dikes. We built the Havasu intake channel. All of those were completed before we started building the canal prism itself and the pumping plants, the four pumping plants that were built. I don't know what did we spend on those, about \$45 million in siphons and about \$80 million in tunnels, so we

*Buckskin Mountains
Tunnel costs*

had about \$120 or \$130 million worth of construction in place before we started working on the pumping plants, and that was because it took time to get the organization rolling, it took time to get the designs in place, it took time to build an effective level of appropriations, and, as we said earlier today, much of the early appropriations were dedicated to the Navajo Generating Station and the transmission lines. So we needed to get those in place. We needed to have completed our expenditures on the Navajo plant before we could really become an efficient operation in terms of construction for the water conveyance system.

Our target budgets at that time were \$40 to \$50 million a year, and \$30 to \$40 million was going to Navajo, so there was only \$10 or \$20 million left over to build the water features of the project. It took a time to really get rolling, and the percentage of Reclamation's budget eventually, as CAP became the single-largest appropriation item within Reclamation's budget and probably was greater than many of the region's--just the project itself was greater than many of the region's budgets. The Lower Colorado Region had both the Yuma desalting plant and the Central Arizona Project at the heyday of their construction simultaneously, so the Lower Colorado Region, for construction activity, was the single-largest activity within Reclamation, and CAP being the single-largest one within the region. So we were probably region number two in terms of construction dollar volume for a number of years, and the only reason the Lower Colorado Region was number one was CAP was within the Lower Colorado Region.

Budget for CAP in the early years

Storey: Anything else about the Granite Reef aqueduct that came up, before I ask you a couple of cleanup questions that I forgot?

Morton: Well, you know, I think we need to talk a little bit about the siphon situation.

Storey: Yeah.

Morton: I don't know that this is the proper time for that.

Problems with reinforcing wire on siphons in the CAP

Storey: You've just raised it, so let's go ahead and do it.

Morton: Okay, let's talk about the siphons. Well, six of the seven Granite Reef siphons that were built that crossed major water courses, the Salt River, the New River, the Agua Fria River, Jack Rabbit Wash, Hassayampa River, and the Centennial Wash, were all built with pre-stressed concrete pipe. It was also, like the Buckskin Mountains Tunnel, 22-foot inside diameter, 23 1/2-foot outside diameter pipe. It was big pipe. It was state-of-the-art. I mean, pipe at this size had never been cast before. The technique for casting it had been perfected on smaller pipe, and there was pipe at Jordanelle and on the Navajo Indian Irrigation Project and other places that was in the 10 or 12 or 14 foot range. But we were taking a quantum leap of almost double what historically had been done with pre-stressed concrete.

The Granite Reef Aqueduct siphons had an inside diameter of 22 feet, almost double the size of previous pre-stressed concrete pipe

The manufacturer fabricated all new equipment to build this pipe. The handling equipment was unique to this size of pipe. The pipemobile that transported the pipe from the casting yard to the job site had to keep--the pipe weighed 225,000 pounds per segment, and so they developed a conveyance facility, a conveyance machine, to lift that pipe up and carry it from the

casting yard to the pipe trench. If you can envision one of the large rock haulers that they use in open-pit mining operations and put three of those together, that's about what one of these pipe mobiles looked like in terms of size. You could stand next to the tire and you couldn't even come up to the wheel of the tire. The tire was 5 foot in diameter. I mean, in the width of the tire it was just 5 feet wide.

Storey: You mean in the rubber part?

Morton: Yeah, in the rubber part was just 5 feet.

Storey: Didn't include the rim or anything?

Morton: Doesn't include the rim. You'd stand on the ground right by the tire and your head would come up just about to the bottom of the rim of the wheel. So it was an enormous operation. Most of this pipe was placed in the 1975-1978 time period, and it was covered with upwards of 20 feet of earth cover and just sat in the bottom of these river channels, and water, from the Colorado River, was not introduced in a flowing condition-- in other words, we filled the pipe with water from wells, so that if we had come down the water course, the pipe would be buoyant if it wasn't filled with water so it would have risen up out of its bed.

Storey: It would have floated out.

Morton: It would have floated out. So we filled it with well water, filled these pipes with well water, and then put a bulkhead on either end and put a chain-link fence around it, and walked away from it, because it was as safe as Fort Knox.

About 1989, after we'd run water through it, four or five years worth of Colorado River water had run through it, we came to the realization during a routine inspection that some of the wire that was wrapped around this concrete core to provide compressive strength was deteriorating, and we uncovered large segments, large lengths of pipe, and found a substantial amount of deterioration. We investigated what caused that deterioration and have now concluded that it was as a result of poor quality wire, that, once again going back to our Teton experience, the tests to verify the integrity of the wire at that time, in the 1970 time period, are not the tests we would use today. The science has changed. The technology has improved. Had we used the tests that are now in vogue to assure the quality of the wire, we would have detected it. But we didn't have those tests and we didn't utilize those tests and they weren't required, and so now we had what we determined to be a latent defect that we--

Tests to assure quality of wire in the 1970s are now outdated

END OF SIDE 1, TAPE 2. JUNE 18, 1996.

BEGINNING OF SIDE 2, TAPE 2. JUNE 18, 1996.

Storey: You had identified that there was a latent defect in the pipe.

Morton: Right. We've alleged that the contractor furnished us pipe that contained a defective wire, and that defect, that latent unknown defect, is now cause for a claim against the contractor. In this case, it's Peter Kiewit and Sons, who is the prime contractor for all six of those siphons. Ameron Corporation was the pipe supplier, but we had no contractual relationship with Ameron. They were a subcontractor to Kiewit. So we've now filed a

Reclamation claim for \$40,000,000 before the Department of the Interior Board of Contract Appeals for siphons

claim for almost \$40 million with the [Department of the] Interior Board of Contract Appeals, and this may be litigated before the board for several years, would be my guess, as we sit here today. But we have an outstanding claim for a latent defect in the amount of about \$39,700,000, I think is the total today.

Because of this defect, we have repaired two of the siphons, two of the high-head siphons. Basically, the pipe consists of a concrete core cylinder that is then wrapped circumferentially with this wire to provide the compressive strength to hold the concrete in place against the hydrostatic pressures of the water that are within the pipe, when you're running water through the pipe. It provides the compressive strength, and then a mortar coating is put over the wire to protect it from damage or corrosion.

There were a number of theories what had happened. Water got behind the mortar coating. The mortar coating was damaged during construction by backfill operations. The mortar coating didn't adhere properly to the pipe for one reason or another, too high a cement-to-water ratio, too low a whatever. But there were a number of theories on what caused the wire to corrode.

When the wire corroded, of course, all the compressive strength was lost, and so now the concrete cylinder was being subjected to internal pressures from the hydrostatic force of the water, and, in turn, the concern was that the concrete would just blow up, that a whole section of concrete would explode outside the side of the pipe and the water that was in the canal would escape.

Well, as we've discussed the checks and other things, that's not a real problem in terms of loss of water, but if you happen to be standing on

*Two high head siphons
have been repaired*

*Real issue with the
siphons is safety and inter-
ruption of water service*

one of these things when it exploded, at a water spout 200 feet in the air, obviously there was a personal danger to anybody in the area. There was also the fact that if it did explode, you're going to lose your operation for a year or two years until you could replace that piece of pipe, and, of course, that was not acceptable to the contractors within CAP, the water service contractors within CAP.

So we've gone back and we have replaced two of the siphons in their entirety. The Salt River siphon and the New River siphon have been completely replaced. As we're talking today, construction is under way on replacing the Agua Fria siphon. It's scheduled to be completed next January, January '97. The other siphons are much lower head siphons. The Agua Fria and the Salt River both have hydrostatic heads of about 220 feet of water pressure on the internal core of the pipe.

The westernmost siphons, Centennial, Jack Rabbit, and Hassayampa, are much lower head, 60 to 80 feet, so the threat of a catastrophic failure is significantly less on those pipes. They were also constructed about three years later, two to three years later than the eastern siphons, Salt River, New River, and Agua Fria, and we think there was a different pipe manufacturing process, that the wire manufacturer used a slightly different process, and while we're still noting some corrosion in those pipe siphons to the west of Phoenix, it's not as significant, nor is the potential for serious damage as high, because of the lower head.

So we are doing, or CAWCD, the O&M entity will be doing an annual maintenance, and to the extent a high level of corrosion is identified, there will be remedial measures. They'll be wrapped with tendons. They'll excavate around

Lower head siphons aren't such a problem as the high head ones

the pipe and a tendon will be installed around the pipe to provide additional compressive forces to hold the pipe together. But we probably won't replace those with new siphons.

There's one area of concern. The Centennial siphon crosses not only Centennial Wash, but it also crosses Interstate 10, and the area immediately under Interstate 10, a steel sleeve is going to be inserted in that pipe, so that if there is some catastrophic failure, it won't adversely effect the freeway or anybody driving down the freeway. If it should happen to result in some catastrophic failure, it won't be a risk to life or property. So we are going to install--and that is under contract, as well--install a steel liner within that section of pipe to provide the strength necessary to eliminate the potential for failure.

That's another thing that, even though we didn't learn about it for almost fifteen years after it was installed, that was one of the problems that came out of the construction of the Granite Reef that was unbeknownst to us at the time.

Storey: Now, the claim that we have filed, is that a claim for the original cost or for the replacement cost or somewhere in between?

Morton: Somewhere in between. It's based on the replacement cost. The Contracting Officer was unable to make a determination that all of the latent defect could be laid at the door of the contractor. In other words, the government also had some potential involvement in--I mean, nothing's absolute. We think it was this bad wire, poor quality wire, but we can't be 100 percent assured that all of the corrosion results from that. We specified that the contractor could, in his backfill operation, could just push rocks over the side of the trench. I mean, we're talking about a

Protecting Interstate 10 from potential damage if the Centennial Wash Siphon fails

How the claim amount for the siphons was determined

30-foot deep trench. A rock rolls down, smacks into the side of the pipe, causes the damage there. Even though it was latent and unknown to us at the time, our construction control and our construction specification could have led to a direct result of that defect. [Larry is this precisely what you meant to say or was it something like--our construction control and our construction specification could have directly resulted in that defect.--or something else; altogether????]

There's going to be a lot of testimony offered. There's going to be a lot of exhibits, a lot of debate before the [Department of the Interior's] Board [of Contract Appeals] on what caused this corrosion. The Contracting Officer has to look at the whole picture. She operates independently of the engineering organization. She's an independent arm of Reclamation. It was the Contracting Officer's judgment that at least 50 percent--not at least, but 50 percent, potentially, of the cause of the defect could be laid at the doorstep of Reclamation. The other 50 percent was assigned to the prime contractor. So roughly 50 percent was discounted.

We also got fifteen years of service out of something that was supposed to be around for 100 years, so the remaining service life, the remaining eighty-five years of service life was also discounted to reflect the fact that we got some value out of that pipe for the first fifteen years of its existence. That also entered into the equation to establish the amount of our claim.

The base claim was based on about \$120 million repair, replacement, and investigation program that was undertaken to rectify the problem. So we started off with a \$120 million outlay. That outlay, in turn, was present value and discounted for the years of

service that we got out of the original product, and then was further discounted based on relative responsibility for the corrosion, or what the Contracting Officer believed the relative assignment of responsibility should be. The whole claim was discounted from a \$120 million outlay back down to a \$40 million claim.

Storey: When you say the Contracting Officer, that's somebody here in Phoenix?

Morton: No. The Contracting Officer is in Boulder City, Nevada. She works in the regional contracting office.

Storey: The regional office.

Morton: Right.

Storey: Okay. How do you replace siphons without breaking the water service, without interrupting the water service?

Morton: Well, you do it in the winter, when the water service or water demands are low. Basically what we have done in the case of the other siphons is to construct a parallel siphon. In the case of the Salt River siphon and in the case of the Agua Fria River siphon, it's made out of steel. A steel-lined pipe of 22-foot diameter has been welded in a trench immediately adjacent to the existing pipe siphon.

*How to replace siphons
without interrupting water
service*

Storey: So you use the existing one until the new one is ready.

Morton: We continue to use the existing one, even though there's a threat of its catastrophic failure. We don't believe that the probability is that high that any of the workmen that are working immediately adjacent are going to be subjected to that failure. So, we basically built a second pipe right next to the first one, and then like in the December-January time frame, when water demands are relatively low, we take the old siphon out of service and we tie into the canal, the canal section, with the new pipe. We have to get in there, demolish the old structure, the old inlet and outlet structure, fabricate a new inlet and outlet structure, and warp the new pipe into the new inlet and outlet structures.

They were able to do that in about fifty to fifty-two days, something like that, and with relatively low water demands during the winter, were able to schedule around, at least in the last couple of years we've been able to schedule around and have not really had an adverse effect on anybody's water needs. All of our customers have other sources of water. They're not totally reliant on CAP for their water supply. They have wells or they have other surface water sources available to them. And so it's just a case of scheduling their demands to fit our outages.

The Agua Fria siphon is located upstream to the west of the Waddell Reservoir, so none of the customers will be adversely affected when we make the tie-in for the Agua Fria siphon, because we can just deliver water directly out of the reservoir and run it downstream to our customers downstream, and then the few customers that we have to the west, upstream of the Agua Fria siphon, we can just deliver them water right from the Colorado River, direct delivery. So nobody will be adversely affected in terms of water

delivery when we make the tie-in in December '96 and January '97.

Storey: So now, if I'm understanding this, the replacement cost or the original cost was about \$120 million for the siphons?

Morton: Our investigation program, our replacement cost, and our present value of the long-term repair costs are what we estimate we're going to have to do in the next thirty to fifty years on these siphons we're not replacing, we've present valued that cost and we've come up with about \$120 million. The actual construction cost wasn't anywhere near that expensive. Of course, that was in--

Storey: A number of years ago.

Morton: Yeah, almost twenty years ago, eighteen to twenty years ago that that activity was under way. I think the actual construction cost of those six siphons was something on the order of about \$50 million. We're replacing three and we have a future repair cost on three others that's cost \$120 million, and the original cost was probably in the \$50 million range, so the cost has gone up significantly over the past fifteen or twenty years.

Storey: Now, I can imagine that if I were at the Central Arizona Water Conservancy District, I might be upset about having to repay costs of \$50 million for initial construction and an additional \$80 to \$120 million for work that, from my point of view, shouldn't have had to happen. What kinds of conversations are going on here?

Morton: Funny you should ask.

Storey: Maybe we should do that tomorrow. I see our time is up. Why don't we pick up with that question tomorrow?

Morton: That'll be fine.

Storey: Okay. I'd like to ask you whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Morton: Yes, I am.

Storey: Great. Thank you.

END OF SIDE 2, TAPE 2. JUNE 18, 1996.
BEGIN SIDE 1, TAPE 1. JUNE 19, 1996

Storey: This is Brit Allan Storey, Senior Historian of the Bureau of Reclamation, interviewing Larry Morton, in the Phoenix area office, on June 19, 1996, at about ten o'clock in the morning. This is tape one.

I had just asked you about repayment and how it related to the issue of the siphons and CAWCD, when I realized time had run out on us. So why don't we pick up there.

Siphon replacement/repair and CAWCD's repayment responsibility

Morton: Okay. It's interesting that you ask that question, because many people have given some thought to that, including CAWCD.

I believe it was in 1991 that we received correspondence from the district objecting to the program we had laid out to repair the siphons. Their objection was based on increased repayment obligation that they would have to bear.

CAWCD objects to increased repayment obligations due to siphon repairs

We basically went back to the master repayment contract, and pointed out that the salient paragraphs do provide that the cost of the

project will include any and all repairs necessitated prior to the time that the project is turned over to the district, and enters O&M status. We did do a transfer to the district of the aqueduct system in September of '93, so at that time period, in '91, when the issue was first broached, it was our view that the district was responsible for any costs that we incurred to repair any part of the system prior to transfer.

They appealed that decision. They took our findings and went to Congress, and asked the Congress to declare the costs of any repairs and/or replacements of the corroded siphons to be non-reimbursable. This was debated. The Congress, as part of the Public Law 102-575, debated that issue as part of that Omnibus Reclamation Act that was passed in--when was it passed? '92?

CAWCD takes the issue of siphon repair costs to the Congress

Storey: I don't know.

Morton: '92 or '93. It was in the last session. Yeah, it had to be '92, because '93 would have been a new Congress. So I guess it was '92 that it passed, like October or November of '92.

But the district asked for 100 percent relief. In other words, all the costs of the repairs be declared non-reimbursable. Congress examined the situation and concluded that there was some validity in the government's response to CAWCD, i.e., that they had entered into a repayment contract, and the repayment contract clearly stated that repairs of any nature whatsoever were part of the project cost and subject to repayment.

But they also, apparently, had some sympathy for the district's concern, and what they did was, they passed, as part of Public Law 102-575, they passed a section of that law that provided that 50 percent of the cost of the

Congress agreed that fifty percent of the cost of repair of siphons would not be cost reimbursable

repair and replacement would be non-reimbursable. The other 50 percent, the remaining 50 percent, would be subject to our normal cost allocation procedure. Since the aqueduct system delivers roughly 50 percent of the available water supply to Indian tribes, somewhere between 43 and 50 percent, depending on how the water allocation is judged in the future, roughly 50 percent of the reimbursable costs are to be borne by CAWCD, and the other 50 percent would be borne by the United States in their trust responsibility to the Indian tribes--the Indian contractors.

So from a practical perspective, every dollar that we spend on reconstruction or repair of the siphons adds twenty-five cents to CAWCD's repayment obligation. That's kind of where we've ended up.

CAWCD has indicated that they're going to attempt to recover that one way or the other. Their initial thrust was to bring suit against the prime contractor for deficiencies, similar to what we had done. The United States, of course, or Reclamation, had a contract dispute with the contractor, in other words, Peter Kiewit Sons--Kiewit and Sons--the prime contractor for those six siphons. Our relationship was a contractual relationship, and we had to exhaust our administrative remedies under the contract before we could bring suit in Federal District Court.

CAWCD, on the other hand, was not bound by the contract. They had no contract with Kiewit, and so they filed a lawsuit in state court, and the court basically said that the timing was not right. They had not incurred any damages, so they could not claim any compensation for those damages. Obviously, when we get down the road, several years, and CAWCD makes payments, if they do make payments to the United States for

***CAWCD begin a lawsuit
against the contractor for
the siphons***

this twenty-five cents on the dollar that we've been talking about, they may now have standing before the court, and probably will attempt to recover first from Kiewit.

Then I would imagine that if they're unsuccessful in that arena, then they'll probably come back on the United States and try and recover, in some manner, against the United States. Of course, we do have an ongoing litigation with CAWCD on the specifics of the master repayment contract and our respective interpretations of that. That may come out in that litigation as well. Between about January--well, that's not true. Probably between March of 1994 and June of 1995, we attempted to negotiate a resolution of the dispute on the master repayment contract, and the siphon issue was raised during those negotiations. Had the agreement been executed, which it was not--the Secretary refused to sign the agreement--but as negotiated, the agreement relative to siphons provided that CAWCD would recover its prospective costs of repayment from the initial proceeds that the United States would recover from Kiewit, presuming that we recovered. It was silent on recovery if, in fact, we didn't get anything out of the latent defect claim against Kiewit. But to the extent we recovered anything from Kiewit, as a result of our latent defect claim, CAWCD's present value prospective costs would have been paid to them out of those proceeds. But that agreement never came to fruition, and the concept has probably been lost, at least until the ongoing litigation on the repayment contract is resolved in one form or another.

Storey: Where does the three-quarters, two-thirds, however you figured this, of money that isn't recovered, come from?

Morton: It's appropriated money, and it's just not subject to reimbursement under Reclamation Law.

Storey: Is it part of the overall CAP authorization, or is it a special authorization, supplementary, or what?

Morton: There was no increase made in the CAP appropriation ceiling as a result of the siphon repair work. In other words, the cost of the siphon repair work had to be absorbed within the appropriations ceiling. Today as we're speaking, we're still under that ceiling by about almost \$900 million--\$882 million, I believe, is the figure right now today. So we can still continue to seek appropriations, and the bulk of those appropriations we'll be seeking are dedicated to distribution systems for Indian contractors, and the completion of the scrubbers at the Navajo Generating Station. We'll still be paying about \$70 million on the scrubbers and another, roughly, \$400 million on the Indian distribution systems. So \$470 of the \$880 is tied up with those two aspects.

Reclamation's appropriation ceiling for CAP

The other things that add to those costs would be Buttes Dam and Reservoir, Hooker Dam and Reservoir, potential for drainage systems. CAP authorization included a cost for a future drainage system. In all likelihood, the drainage system won't be built. It's very unlikely that Buttes Dam will ever be built. Hooker Dam, or suitable alternative, may come into being, but it's probably a number of years down the road, when western New Mexico develops to the extent that they have a need for the water. Right now it does not appear to be a demonstratable need, nor an

entity that is willing to contract for the 18,000 acre-feet that was allotted to western New Mexico.

So in combination, those are the five big cost items that go into the unfilled, or unexpended, appropriations ceiling.

Storey: I think we talked about indexing up construction costs and various other things in one of the previous interviews. What was the original authorization for appropriations, and what's it at now? Do you remember?

Morton: The original authorization was \$832 million. The escalated appropriations ceiling that we have today is \$3.85--\$3,850,000,000.

Storey: So we're right at having spent about \$3 billion on the project.

Morton: We've just spent right at \$3 billion. We will go over that this fiscal year. In our report to Congress that ended the fiscal year '95, we were just under \$3 billion.

Storey: There was a question yesterday that I should have asked you during the discussions about how the CAP would affect Colorado River operations, and you talked about the way it functions now, how CAP complements, in many ways, the way the systems operations, and the way the electricity systems complement. Has it always been like that? Was it planned to be that way from the very beginning, or has that evolved?

Morton: No, it's been an evolutionary process, certainly. The 1947 report on the Central Arizona Project envisioned an aqueduct having a capacity of about 1,800 cubic feet per second, and it anticipated that

Evolution of CAP operations from the planning stage to implementation

the aqueduct would operate on a demand basis, and would divert water from the Colorado River eleven months a year. One month out of the year, the aqueduct would be--operations would be curtailed for maintenance types of activities that might be necessary--repairs, maintenance of pipelines and so on. It was anticipated that the aqueduct system would only operate for eleven months. That would equate to about 1.2 million acre-feet of water per year actually being diverted off the Colorado River.

Like I said, it was a strict demand operation. However, because the project energy necessary to pump that water from the Colorado River would have been created by the powerplant at either up a Bridge Canyon Dam or a Marble Canyon Dam, the fact that we were diverting water would be consistent with a run-of-the-river type of a powerplant. In other words, when a water order in central Arizona was made, and a farmer or a municipality asked for a certain quantity of water, in the summer, when the peak load was, well, the water would be released through the dams, and then the power would be generated. So that type of a power operation, as well as that type of water operation, was fairly complementary, in that peak demands for power, peak demands for water, would be coincidental, and the water, since it was hydroelectric energy, would generate the power and then be diverted, and the power would be used to actually pump that water into central Arizona.

It was a fairly complementary operation that was envisioned, somewhat smaller than what we have today. In other words, we have a 3,000 cubic-foot-per-second aqueduct, as opposed to the 1,800 that was envisioned at that time. Certainly, today, a different mode of operation with regulatory storage located within central

Arizona. There was an Orme Dam in the '47 report--or rather it was called McDowell Dam at that time, but it was primarily an adjunct to the Salt River Project. It was to be used to store water from the Salt and Verde River system, and really wasn't envisioned to be a regulatory facility, a storage battery, if you will, in central Arizona.

Storey: Am I hearing you say that if you generate power with an acre-foot of electricity, that power would pump an acre-foot of water?

Morton: Well, it depends on how far you were pumping it. No. My recollection was, for example, Bridge Canyon had a hydraulic head of about 585 feet. So the reservoir that was envisioned for Bridge Canyon would have been a real stable reservoir. It would not have fluctuated. It would have been a run-of-the-river type of a powerplant, a run-of-the-river type reservoir. It had about between 3 and 4 million acre-feet of storage, but once that storage was achieved, it would generally remain there constantly.

So you were generating at a head of about 585 feet. We have to pump, and every acre-foot of water that goes through that has some efficiency associated with it. In other words, you don't get the theoretical energy back that 585 feet of head of water would create. You don't get 100 percent. The machinery, the efficiency of the machinery, the friction factors and so on, were factors [that] don't allow you to recover 100 percent. So you'd probably get 85, 90 percent of the theoretical energy out of that head of water.

Well, CAP, in order to pump an acre-foot of water all the way to Tucson, you have to overcome about 2,400 feet of head. So you probably need at least four times as much to lift that water from Parker, or from Lake Havasu to

*Electrical needs of CAP
versus power generation
on CAP*

*Water delivered to Tucson
has to be raised 2,400 feet*

Tucson, probably closer to five times as much when you figure out all the inefficiencies that you have to overcome within the CAP system. Probably need five times as much energy as that one acre-foot of water would generate at Bridge Canyon. But you've got to remember CAP's only taking 1,200,000 acre-feet, under this kind of a plan. We're also delivering seven-and-a-half million acre-feet to the lower basin. We're delivering a million-and-a-half acre-feet. Well, 750,000 acre-feet, presumably, is coming from the upper basin. In other words, one-half the Mexican Treaty, plus the 75 million acre-feet every ten years, which is an average of seventy-five.

So through the powerplant you'd be running something on the order of eight-and-a-quarter million acre-feet--eight-and-a-half million acre-feet a year, through the Bridge Canyon Powerplant. So you're going to create sufficient energy to take care, even with the wear factors and the other inefficiencies of the mechanical equipment, you're going to create more energy than what you need to actually pump CAP's requirement, because of the relative volumes. In other words, you're running eight-and-a-quarter million acre-feet through the generating plant, but you're only pumping 1.2 million acre-feet. Even though you're overcoming it by a factor, your hydraulic head that you have to overcome with the pumps is maybe four or five times as much as what you've got installed in the pumping plant. The volume that goes through the generating plant is significantly greater.

Storey: If you know about this, why don't we talk about accounting then. You have coming through Bridge Canyon, say, maybe six times as much power as would be going into CAP. So CAP is using about two-thirds of that or so.

Morton: Something like that.

Storey: Then there's a surplus of about one-third, which can be sold, presumably, or goes to another project, or something.

Morton: Right.

Storey: How are the costs figured? For instance, would two-thirds of the costs of running Bridge Canyon then have been allocated to CAP and charged to them as O&M charges, and the rest sold for replacement? Or how does this work?

Morton: Well, the way it was set up, and the reason I can say this is that in the mid-sixties when we were reformulating it, we took the old plan and the first analysis that we did in '64. It looked at Bridge Canyon as part of the Central Arizona Project. What you ended up with was the cost of Bridge Canyon being allocated to M&I pumping energy, to irrigation pumping energy, and the commercial sale energy. So in fact, the piece of the investment, the capital investment that was being paid for Bridge Canyon, was going into the CAP irrigation cost allocation function, a percentage was going into the M&I cost allocation function, and a separate function of power was also being allocated to share in those costs, both separable and joint. So the bottom line was that, to answer directly your question, yeah, the water user was paying the rate that the water user would pay for his water, would go to pay a share of the O&M costs of operating Bridge Canyon. The rate would also go to pay a share of the capital repayment component that would come out of Bridge Canyon. So for example--and I really don't recall the cost numbers today--but, theoretically speaking, if Bridge Canyon was a \$100 million

How power costs and revenues would be allocated on CAP

project, and two-thirds of it was for pumping water, and one-third was for commercial power, and I'll be arbitrary and say of the two-thirds, half was for M&I and half was for irrigation. The irrigation rate would be calculated based on zero interest rate, it would be calculated based on the farmer's ability to pay, and it would be based on 100 percent of the allocated O&M for irrigation. So the irrigator has to pay, at a minimum, the full O&M, the O&M of the aqueduct system plus one-third of the O&M of the Bridge Canyon Project.

Repayment costs vary depending on the entity receiving water from CAP

Storey: Because they use that one-third under this theory.

Morton: Because for this theoretical example, they get one-third of the water--or they get one-half of the water, but one-third of the power from Bridge Canyon. So they pay one-third of the O&M associated with Bridge Canyon. That's all calculated with no interest, because Reclamation Law gives a subsidy to irrigation, and doesn't require irrigators to pay interest.

Storey: Reclamation Law also says that we base it on the ability to pay.

Morton: The ability to pay, which is the cap. But if the ability to pay doesn't cover O&M, then it's an uneconomical process--operation and, in fact, you probably don't deliver any water to irrigation. In other words, irrigation has to pay its annual O&M expenses. You've got to recover O&M. The capital components can be subsidized, and the capital component gets subsidized also by zero interest rate.

"irrigation has to pay its annual O&M expenses"

Storey: I presume this approach to obtaining power for the project was transferred over to the Navaho Power Generating Station.

Morton: Similarly. Yeah. Exactly.

Storey: So you have the component of power for sale, M&I power, irrigation power.

Morton: Right.

Storey: Let's go a little deeper.

Morton: Well, let me say this. Out of the Navajo costs, which are all CAP costs, a component is commercial power. One function of CAP is commercial power. So a portion of the Navajo Powerplant is allocated to commercial power, as is a portion of New Waddell Dam, for example, because without New Waddell Dam, you can't sell the power for anywhere near the value that you can sell it for with the New Waddell Dam, because New Waddell Dam becomes a power marketing incentive to the whole operation, because you're able to fill it up in the winter when the value of power is relatively low, and you're able to sell the power now, in the summer, by virtue of the fact that you've brought your water in and stored it in the New Waddell Dam, or in New Waddell Reservoir.

So there are various facilities who have various functions. Some facilities have just water supply functions; some facilities have power and water supply functions; some have power, water supply, flood control; some have power, water supply, flood control, and recreation. And the whole thing is melded into a CAP cost allocation. We don't allocate the cost of Waddell separately from the whole of the CAP. We don't allocate the

How New Waddell Dam makes CAP electricity more valuable

cost of the Navajo Powerplant separate from CAP. So it's a CAP cost allocation, and all of those factors are melded together.

Intuitively, I think we can say that even though the math is not done that way, intuitively, we can say Navajo supplies the three functions that we just discussed: commercial power, M&I water supply, and irrigation water supply. But you can't go and say, well, you spent \$222 million on the Navajo Powerplant, how much of it is M&I water. The process of developing the mathematics just loses that specificity. It's just not there.

Storey: It must be fairly complex.

Morton: It is.

Storey: Do we have a whole team of what, economists, or bookkeepers; or who is taking care of this?

Morton: Both. (laughter) On one side we have a team of financial specialists, certified public accountants, and whatnot, that keep track of the actual costs, and how those costs are credited and debited to the various functions and the various facilities--features--that are built. On the other hand, we have a team of economists, Bob Hamilton in the Denver office, and Mary Vodnik in the Denver office, Allen Kleinman, the regional economist, Steve Augustine our project economist, all of whom continually debate the cost allocation merits, and are often engaged [in discussions] by the Central Arizona Water Conservation District in [about] proper cost allocation practices. So it's a long deliberative process. We started in 1992 in about January of '92, to allocate the first construction stage, the aqueduct system in the Navajo Powerplant. Those costs were allocated, and in

How Reclamation keeps track of costs, income, and cost allocation

September of '93, that first construction stage was declared substantially complete, and the repayment obligation for that was transferred to CAWCD.

END OF SIDE 1, TAPE 1. JUNE 19, 1996.

BEGINNING OF SIDE 2, TAPE 1. JUNE 19, 1996.

Morton: The CAWCD has yet to agree with that determination on what their bill is, what their obligation and what their annual bill is, and we're in litigation. We mentioned earlier today that CAWCD has filed suit against Reclamation to protest the terms of the master repayment contract, and the financial relationship with the United States. So that is certainly up in the air. We believe that based on our stage-one cost allocation, the fifty-year obligation that's owed by CAWCD is roughly \$1.6 billion. They've alleged that it's significantly less than that. We've determined that the total cost of all the facilities that we expect to build, on behalf of CAWCD, will result in an obligation of about \$2.2 billion. CAWCD has indicated that their maximum obligation for all construction stages should not exceed \$1.87 billion dollars. So we're apart by about \$400 million on the maximum ceiling, and an undetermined amount at--CAWCD hasn't stated how much they think their obligation is for the stage one construction, the aqueduct system construction, other than [that] it's less than the \$1.67 billion that we've indicated it should be. So that's in litigation.

Currently, it's our view that CAWCD, including late charges and interest as of today owes the United States about eighty-nine-and-a-

Where Reclamation and CAWCD stand regarding repayment responsibilities in 1996

CAWCD's current repayment bill is about \$89.5 million

half million dollars in current due costs. They've chosen not to pay that, and are protesting that as part of their lawsuit as well.

Storey: All of this, I presume, is made more complicated by the fact that the proportions of agricultural water and M&I water are constantly shifting?

Morton: That and the fact that the water being delivered to CAWCD subcontractors is varying with the percentage of water being delivered to contractors other than CAWCD subcontractors, notably, the Native American tribes that the Secretary's contracted with. So the Secretary has indicated to the CAWCD that it's his desire to obtain as much uncontracted CAP water as may be necessary to satisfy current and future Indian water rights settlements in Arizona, and that was one of the cornerstones of the negotiations that went on for about a year and four months, like I said earlier, between about February or March of '94, and June of '95. When those negotiations finally broke down, that was what precipitated the litigation.

Storey: Now I guess I'm confused, because I thought, was it Secretary Morton, in 1980, made the Indian water allocations out of the CAP Project.

Morton: Well, there's been a number of allocations of CAP water for Indian use. The earliest one was made by Secretary Andrus, and Secretary Morton did a subsequent one, and Secretary Watt made a subsequent one, and then several pieces of legislation associated with Indian water rights settlements, added additional water or obtained

*Allocations of CAP water
for Indian use*

additional water from other sources to be conveyed through CAP. So where we started at about 310,000 acre-feet, we're now up to about 447,000 acre-feet of project water to be delivered to the Indian communities in central Arizona. What we were negotiating with CAWCD for was roughly 600,000 acre-feet, when we were actually sitting at the table and trying to hammer out the dispute on repayment and the financial terms of the master repayment contract. The actual distribution of water to go to the Indian communities was approaching the 600,000 acre-foot figure, which would be roughly 50 percent of the long term average water supply for CAP.

Storey: So if I'm interpreting this correctly, the Secretaries thought that they understood what the Indian water needs ~~did~~ [were], but they fell short.

Morton: Correct. If you'll recall our earlier discussion, our assignment from Gil Stamm was to treat the Indians in a parallel fashion with non-Indian irrigators, and determine what their water needs were for currently developed lands, lands with a recent history of irrigation, determine what the water needs for those lands were, and deduct from those requirements, locally available surface and groundwaters. That resulted in a figure of about 310,000 acre-feet.

Storey: That was the first allocation.

Morton: And that was the first allocation. That was not the first allocation. 273,000 acre-feet was the first allocation. Then at a later date, I believe it was with Secretary Morton's allocation, I'm a little weak on the time frame, but the original concept was five tribes: Fort McDowell, Salt River, Ak-chin, Gila River, and the Papago Nation, what is

now the Tohono O'odham Nation. My recollection is that was like 273- or 278,000 acre-feet.

The next allocation brought in additional tribes. The Papago Tribe location was at the village of Chuichu. That was the only part of the Papago Tribe that was considered at that time, in the initial allocation. The second allocation expanded the number of delivery points. It included the Tonto Apaches, it included the Camp Verde Apaches, it included the Yavapai Prescott Tribe, it included the San Carlos Apaches, and it added two additional locations to the Papago Tribe, which is now the Tohono O'odham Nation. It added the Schuk Toak district and the Santa Xavier district. So we went from five tribes at five locations to ten tribes at twelve locations. Those, with the exception of Gila River, all nine of the ten offered contracts were signed in December of 1980. So that was the second allocation. The determination that was technically made, and the preliminary allocation that was made, based on that technical determination, was then expanded, and nine of the ten tribes, with the only exception being the Gila River Indian Community, signed contracts with the Secretary in December of 1980. The Gila River Tribe Indian Community signed its contract in 1991, I believe it was, but much later--ten or eleven years after the earlier contracts were executed.

Storey: So at that point there was proposed allocation of 400--

Morton: Well, the Ak-chin Settlement Act basically added 50,000 acre-feet to the pot. The United States and some of the local entities that were party to that settlement went to the Yuma Mesa Irrigation District and bought 50,000 acre-feet of water,

changed the Yuma Valley Irrigation District's-- Yuma Valley, yeah, I think that's right--Yuma Mesa--changed the Yuma Mesa contract, reduced it by 50,000 acre-feet. Paid the farmers in that project a certain sum of money, and 50,000 acre-feet of additional water came through CAP.

Storey: Away from the Yuma Project.

Morton: Right. The Yuma Mesa Irrigation District.

There was a transfer of water associated with the Salt River Indian Community Water rights Settlement Act. I believe it was about 33,000 acre-feet that came from the Wellton-Mohawk Project, also in the Yuma area. There was 14,000 acre-feet that was obtained from the Harquahala Valley Irrigation District here in central Arizona, and western Maricopa County, for the McDowell settlement. There was an additional amount, and I'm not sure exactly what it was at the moment, it's still kind of up in the air, but I think it's about 17,000 acre-feet that Scottsdale and some of the other municipal entities have exchanged with San Carlos Apache Tribe. So the sum of all those today is roughly 447,000 acre-feet. In other words, the transferral of water from various other CAP contractors to Indian contractors has resulted now in a water allocation that totals about 447,000 acre-feet.

There is, in the case of the Southern Arizona Water Rights Settlement Act, which settled the water rights claims of the Tohono O'odham Nation, a responsibility for the Secretary to define where he's going to come up with another 28,200 acre-feet. That has not been determined at this moment. But the Tohono O'odham Nation is entitled to an additional 28,200 acre-feet over what they've contracted for under CAP. The Secretary has at his disposal

28,200 acre-feet of effluent from the city of Tucson, from their wastewater treatment plant in the city of Tucson.

There's a number of ways he can use that to help finance potable water for delivery to the Indian communities, or maybe not potable water, but at least water that the Indians are willing to accept as a water supply for irrigation purposes. The act is pretty strict that the effluent cannot just be diverted from the effluent source and delivered to the Nation. It has to be consistent with the Nation's long-term use of that water. If it's irrigated agriculture that produces crops for human consumption, then it would be precluded from using effluent. If it was crops associated with livestock or some other secondary agricultural use, then presumably effluent could be the source of that supply. But that has yet to be determined. In all likelihood Colorado River water through CAP is probably the most reasonable method of developing that additional water supply.

So then the only other major Indian user in central Arizona that has yet to achieve a water rights settlement is the Gila River Indian Community. The Gila River Indian Community, in their negotiations with the United States and local ground and surface water users here in central Arizona, have established a water budget that probably is unsubscribed in the 100 to 150,000 acre-foot range. So when we were negotiating with CAWCD to rearrange the long-term allocation of water to CAP customers, it appeared that the negotiating strategy to be employed by the Department of [the] Interior was to obtain as much supply as we possibly could on behalf of the Indian communities, in anticipation, one, that we would have to meet our legal commitments to the Tohono O'odham Nation,

provide the twenty-eight-two, and possibly make up as much as 150,000 acre-foot in additional water for a future settlement with the Gila River Indian Community. There's several other smaller tribes, the Pasquiaki [phonetic] in the Tucson area, the Tonto Apaches near Payson, and the Middle Verde Apaches near Camp Verde, on the Verde River, all of whom have yet to enter any kind of negotiation for a water rights settlement, but the amount of land that's involved, and the best estimate of the magnitude of the water supply needs for those lands, is probably--it is relatively small in comparison to even the 28,200 acre-feet that we have to find for the Tohono O'odham settlement. It may not amount to more than 5- or 8,000 acre-feet in aggregate for those additional three tribes.

So the Secretary's view has been it's best to negotiate and legislate water rights settlements for the various Indian communities in central Arizona. How many have there been? There's been one, two, three, four, five--there have been five legislated settlements to date. There's one in the negotiation process now, and there's probably three or four more on the drawing boards, but the three or four that have yet to enter--actually, there's a sixth. They just had the Yavapai Prescott settlement was entered into last year. So there are six settlements in central Arizona. One active for the seventh and, I guess, out of the ten, so there's three. Plus one--the original allottee of water in CAP to the Tohono O'odham Nation, the community of Chuichu, has no water rights settlement at this time. So in fact, there may be four future settlements outside of Gila River.

So the Department [of the Interior], and the Secretary, and Reclamation, to try and assist the Department, have been looking to CAP as the vehicle for satisfying some of these Indian water

rights settlements. It's been our negotiating strategy with CAWCD to try and obtain as much water as it's reasonable to expect. It's going to be part of these settlements. Like I said, that's on the order of 600,000 acre-feet.

Storey: Now, I guess I'm confused, because if I understand it, originally the Secretary could allocate CAP water to Indian use. But now we're having to negotiate with the Central Arizona Water Conservancy District in order to obtain more of that water. Why can't the Secretary just simply say, "I have to allocate more water to Indian use"?

Morton: Well, there's another strange factor that enters into this, and that's called the non-Indian irrigation subcontracts. Basically, the process that we went through for the Indian allocation we've already described. Some of those allocations were changed as a result of legislation, whether that legislation actually produced more water, like the commitments at Yuma Mesa and Wellton-Mohawk, or resulted in a transferral of water by one municipality or a consortium of municipalities moving their water around and committing it to Indian tribes, or as was the case on the Fort McDowell settlement, an outright purchase of a CAP contract from the Harquehala Valley Irrigation District. All of those tended to change it, but not within the context of the Secretary's authority to allocate water. But the Secretary, previous to this, had made an allocation of water to non-Indian irrigation as well, and it entered into a number of subcontracts.

*Sub-contracts for CAP
water with the CAWCD
determine water
allocations*

By 1991, the [non-]Indian irrigators came to the realization that the price of CAP water was beyond their ability to pay for. They could not pay for O&M, let alone pay any capital component. So what happened was that the non-Indian irrigators, in 1992, turned their contracts back to CAWCD, and entered into a letter agreement whereby CAWCD, on an annual basis, would furnish them with surplus water from whatever source. So right now we're sitting here with contracts with Indian communities for about 447,000 acre-feet of water, of which maybe 75,000 acre-feet is actually being used. So there's roughly 350,000 acre-feet of water a year of Indian dedicated water, that isn't being used. Similarly, there's contracts for about 585,000 acre-feet of M&I water, 640,000's been allocated. Not everybody entered into a contract for that 640,000 acre-feet, so there's about 585,000 and 640,000 that's under contract. Actual deliveries are about 320,000 acre-feet. So there's another 240,000 acre-feet, 250,000 acre-feet, of water that is under contract to municipalities, but isn't being currently used in the current year. So there's a pool of maybe 500,000 acre-feet of "surplus" water, water that is under contract, but is not being used in the current year.

So what CAWCD has done, [it] has agreed to terminate the long-term contracts, the long-term subcontracts, with the ten irrigation districts, and in turn, provide water at some subsidized, or some reduced rate, to these entities on an annual basis. No guarantee beyond the year in which they're operating in. What they have done is they have set up a pooling system, and they have a pool of 200,000 acre-feet that they're currently selling for, I believe, it's \$18 an acre-foot; they have a second pool of 200,000 acre-feet that they're current selling for \$28 an acre-foot; and they have a third

CAWCD has annual contracts to provide surplus water in the system to irrigators who have relinquished their long-term water contracts

Surplus water is sold at a relatively low price

pool, which is all the remaining surplus water, and I think they're selling it for about \$43 an acre-foot.

All of those rates are substantially less than what the true cost of that water would be. The true cost of water, when you factor in the fixed and variable O&M and the repayment components, is probably on the order of \$60 an acre-foot.

The non-Indian irrigation contracts were based on a percentage of the available supply. So to the extent we were diverting the 1.5 million acre-feet from the river that we talked about, and you had some system losses and were actually delivering maybe 1.4 million acre-feet to the actual contractors, after you took into account reservoir losses, seepage from the aqueduct, evaporation from the free water surface in the canal and so on, you're going to end up delivering about 1.4 million acre-feet of the one-and-a-half million acre-feet you take off the river.

To the extent that you may be delivering, and we have talked maybe 75,000 acre-feet of water for Indians this year, maybe 320-, 325- for M&I, total of 400,000. That would leave a million acre-feet that could be delivered to some other water user in central Arizona, at a cost that should average about \$60 an acre-foot. The way that the contracts read with these non-Indian irrigators was that you're entitled to a certain percentage of whatever has not been ordered.

So each contractor has a take or pay requirement that basically says, "You want the water, you're entitled to--" A given contractor, for example, might be entitled to 20 percent of the available supply in that year. You're entitled to 20 percent of this million acre-feet. So you have an entitlement this year of 200,000 acre-feet. The average cost should be about \$60 an acre-foot.

The "take or pay" requirement in water contracts

Well, that's an easy number to calculate, that's \$12 million. The farmers in that irrigation district can't afford a \$12 million water bill. So they've gone to CAWCD, turned their contracts back--oh, but the contract also requires, if you don't take the water, you at least have to pay the fixed O&M component and the repayment component. We'll let you off the hook; we can sell the energy. We won't pump it, so we'll have the energy to sell, so you don't have to pay the variable cost. But if you want this kind of a contract, and you want this kind of a deal where you're going to take Indian water and M&I water, we want something back from you, and what we got back in the contract was a commitment to take or pay. If you don't take, you still pay.

Well, they couldn't afford, first of all, to take it, nor could they afford to pay, and at \$60 rate, about \$35 of that \$60 rate is the variable cost--the energy cost--and about \$25 would be the fixed O&M and the repayment component. So they couldn't afford not to take any water and still be obligated to pay \$25 an acre-foot, nor could they take the water and be obligated to pay \$60 an acre-foot. Arizona agricultural economy is not in a position to pay that much for water and still make a profit on the crops.

So they turned this back; they got a deal with CAWCD. CAWCD had a long-term objective of taking Arizona's remaining entitlement off the river. To the extent that they could afford to do it, they were willing to, at least through this pooling process, at least sell some of the water at a markedly reduced rate, make some of those water deliveries, improve their operating capability, keep California from getting the water, and basically get into a mode of delivering CAP water, which is what their long-term objective is.

The position of the United States, which is also one of the issues in the litigation they talked about, was could CAWCD unilaterally terminate these subcontracts with the non-Indian irrigators.

Can CAWCD unilaterally terminate subcontracts approved by the Secretary for CAP water?

Storey: Which were approved by the Secretary.

Morton: Which had been also signed by the Secretary. They were three-party contracts. The Secretary, the Bureau of Reclamation, had never approved the termination. It has always been our position that the irrigation districts were responsible for their take or pay obligation, and if they didn't take the water, then they were still obligated to pay the fixed O&M component.

That's another issue at litigation in this lawsuit. Is CAWCD entitled, without Secretarial approval, to unilaterally--

END OF SIDE 2, TAPE 1. JUNE 19, 1996.

BEGINNING OF SIDE 1, TAPE 2. JUNE 19, 1996.

Storey: I'm Brit Storey with Larry Morton on June 19, 1996.

Morton: So the bottom line is, until this litigation is either resolved through the courts, or until some negotiated settlement is reached with CAWCD, the financial integrity of the project, and who gets the water, and how it's being delivered, is going to remain fairly uncertain, at least in the short run.

Storey: One of the criticisms that I believe I have seen of CAP, maybe in Mark Reisner, [footnote: Mark Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (Viking: New York City, 1986)] is that there were people around, back when it was being planned. I think there was an economist, or an ag economist, maybe, saying,

The issue of the cost and economics of CAP

"This water's going to cost a lot more than what's being projected, and it's going to be uneconomical." It sounds like that's exactly what happened. Do you remember who these people were and what was going back in that time period?

Morton: Yeah, there were a number of studies. The most notable one was probably the Powers Report. I think he was an agricultural economist from Montana or Idaho. There was also some opposition to CAP within the state at the University of Arizona. Kelso, Martin, Mack [phonetic], those were all professors at the University of Arizona that took a dissenting view on CAP. I think that they've certainly been borne out. My recollection is back in the '64-'65 time period, when you discussed the costs of CAP water, it was like \$13 an acre-foot for irrigation water, and \$15 an acre-foot for M&I water. Today, the fixed cost of delivery of CAP water is about \$22 an acre-foot. The variable component is \$35 to \$37 an acre-foot, depending on where it's delivered, how far you have to pump it. So it's somewhere around \$35 to--I think \$35 is about an average figure--but it could go as high as maybe \$37 or \$38.

*Costs of CAP water--then
and now*

Storey: So we're already up to \$59 an acre-foot.

Morton: As we were discussing when I mentioned the \$35 earlier on the non-Indian agricultural rates of about \$60 on average, the repayment component for agriculture is \$2 an acre-foot, so it's \$60, \$61, like we were saying. So \$22, plus \$2, plus \$35 or \$36, would be right about \$60.

The M&I rate is closer to \$80 because of the cost allocation, and the fact that M&I has to--bears interest. So if you want to look at it from a perspective of, well, how have the costs changed,

and how have the receipts changed? Back, let's just say nominally, in 1965, we were talking about [an] \$832 million project. We've got a \$3.85 billion project today, roughly four times--not quite four times--yeah, right, four times nine would be thirty-six. A little over four. Price of water, \$13, \$15 an acre-foot [then], \$60 to \$80 an acre-foot [now]. Thirteen, four, four-and-a-quarter times [$13 \cdot 4.25 = 55.25$]. So they just kept pace with one another. I mean, we're not talking a major deviation in terms of index, consumer-price types of indices, relative to either the cost of building the project, or the cost of delivering the water.

You look at what was CAP water selling for. What were other waters selling for in terms of delivery in '65 time period? Salt River Project had an \$8 an acre assessment. They got 3 acre-feet per acre. So they were getting their water for less than \$3 an acre-foot, yet CAP water would have been \$13 an acre-foot. Today, Salt River Project, you get 3 acre-feet, and they charge you \$28 or \$29 an acre-foot, about \$10 an acre-foot average. You get 3 acre-feet per acre, and the assessment is \$29 per acre. So you're getting almost \$10 an acre-foot for water on the Salt River Project, then \$60 an acre-foot if it was being delivered at actual cost to CAP contractors. So SRP has only gone up by a factor of roughly three. CAP's gone up by a factor of four.

The problem is that agricultural returns have not kept pace. I don't know what the agricultural returns were in 1965, nor do I know what they are today, but I know that based on all the reports I've read, they have doubled. They may have tripled, but they certainly have not quadrupled, as the price of water would have done. So therein lies the rub from the irrigators' perspective.

CAP water costs versus Salt River Project water costs

Agricultural returns have not kept pace with increased water costs

Yeah. CAP water's expensive. But in the big scheme of things, the municipal user at the retail end is paying \$300 or \$320 an acre-foot, so most of the cost of potable municipal water is in treatment and distribution within the municipality. Cost of groundwater is variable in central Arizona. There are certain parts of Arizona where it costs \$60 an acre-foot to produce groundwater. There are other parts of the state of Arizona where you can get groundwater for \$25 an acre-foot. It depends on how good a power contract you have, how efficient your wells are, what the depth of the groundwater is, what the yield of your wells in the aquifer are--a lot of variables in what goes into the cost of groundwater.

So I don't know that we can draw any specific comparisons. We can just give you a range of the types of things that we're talking about. Certainly, the agricultural economists in the sixties and those who have prepared analyses on behalf of the irrigators in central Arizona today and their bankruptcy proceedings have kind of hit the mark in just coming to the conclusion that irrigated agriculture can't afford to pay for CAP water at the currently established rates. That's the bottom line.

Storey: I think Reisner asserted that some of those, or at least one of those, professors lost their job because of their support of CAP. Do you know anything about that?

Morton: I think Dr. Martin alleges that he was fired at the University of Arizona because of his opposition to the Central Arizona Project. Dr. Kelso, I believe, is still a professor emeritus in the agricultural economics department at the University of Arizona. Dr. Mack, who at that time was like a graduate student, I think he left of his own

volition. Dr. Martin, I don't know, he found other employment. Whether he was fired or not I don't know. But that's certainly been rumored.

Dr. Allen Powers, who was also a major contributor in an independent but parallel study, I think he was--they say he's in Idaho or Montana. I'm not exactly certain. But he wasn't directly affiliated with Arizona, but he did write some very critical analyses related to CAP and the fact that it was not an economic proposition.

Storey: You've been talking about fixed O&M and variable O&M. Maybe we ought to sort of define those terms.

What are "fixed O&M" costs and "variable O&M" costs

Morton: Well, fixed O&M would be those costs that would be incurred even if you didn't move any water. In other words, if for whatever reason--for example, labor costs. In the case of CAWCD, they have about 425 employees. They're available to operate and maintain the system, and if somebody doesn't order water on any given day, you're still going to have to pay their salaries. Over the long run, over a year, or over a five-year period, there's going to be certain materials, replacement materials, caulking for the canal, minor replacement items for the pumps and motors, and check gates, and motors on the checks, and gear mechanisms on the spillway gates, and everything else. Those replacements are still going to take place, and are relatively insensitive to the volume of water that you move through the system. So those are what would be considered fixed O&M costs. Certainly, you could lay people off, if you were going to be out operation for a long period of time, and you could delay certain replacement or repair work, if you didn't move any water through the system, obviously the wear and tear on the system wouldn't occur. But the bottom line is,

you're going to move some water, it's just in increments that you're talking about. So fixed O&M, including those labor costs and material costs, is running right now about \$22 an acre-foot, based on a full delivery, a million-and-a-half diversion, a million-four deliver. That's about \$22 an acre-foot.

The variable costs are those costs that are directly related to the actual movement of the water. The variable cost generally consists of the cost of the electrical energy to move the water. So if you move water from the Colorado River to Phoenix, the cost is about \$34 an acre-foot. If you move it to Pinal County, it's about \$35 an acre-foot. If you move it all the way to Tucson, it's \$37 or \$38 an acre-foot. So they average about \$35 an acre-foot, based on the relative volumes. Most of the water goes to Pinal County.

Storey: I believe you said, or somebody said, in something that I wrote read, that it was determined that the cost would be averaged for the entire system.

Morton: Right.

Storey: So Tucson pays the same amount of water as Harquahala.

Morton: Right. It's called postage-stamp rate. It doesn't matter how far the letter moves. It can move across town, or it can move from Phoenix to New York City, it's still thirty-two cents for a stamp. But a similar situation, postage-stamp rate for water in Arizona.

The postage-stamp rate system of charging for water--all water on the CAP system is charged at the same rate

Storey: Okay. Let me ask you about a few different kinds of items and see where they fit, variable or fixed O&M. Say, a pump burns out at one of the pumping plants. Is that fixed or a variable?

Morton: Well, that would be fixed, but it would be considered kind of extraordinary maintenance, and it would probably appear on the next year's bill. In other words, they would fund it out of reserve funds, but then they would be responsible for restoring the reserve fund. So they would probably increase their fixed rates the subsequent year by a dollar or so an acre-foot to restore the O&M reserve fund.

Extraordinary maintenance and how it is worked into the financial structure

Storey: I presume it would be the same thing for, say, part of the lining of the canal failing.

Morton: Right. If you had a flood or earthquake or something and a section of the canal lining failed, they'd go in and repair the canal lining and put the canal back in service. But normally the district board is responsible for setting the rates based on reasonable expectations for the subsequent water year. So if they set the rate at \$22 an acre-foot for that year, if there are these extraordinary maintenance needs, they would normally go to their reserve fund budget, and use the money in the reserve funds, to make those repairs. But then they'd play catchup in the subsequent year.

Storey: If I understand it, the O&M responsibility is in Central Arizona Water Conservancy District's hands.

Morton: Correct.

Storey: So do they take care of figuring out fixed and variable O&Ms?

Morton: Yes. Their staff calculates that. Their staff determines how much needs to be repaired, set the rates for salaries, and all that type of thing that goes into it, and their board evaluates it and

Who calculates the various O&M charges for CAP

approves changes, and approves whatever's necessary. But the board is the responsible entity for setting those rates.

Storey: So really out of this roughly \$60 a foot, or \$85 a foot, depending on whose water it is, we're only interested in the repayment portion.

Morton: Well, that's not quite true, because when you say, "we're" that implies Reclamation, the Department of Interior and the Federal Government, and so if we're--the CAWCD has no contractual relationship with the Indian tribes. The Secretary of the Interior and the Bureau of Reclamation have that relationship. So we do have a very important interest, because if they vary--for example, if we are delivering 600,000 acre-feet a year to Indian uses, and they choose to vary the O&M rate by \$10, that's \$6 million a year that comes out of either appropriations, or out of special trust funds that have been set aside for delivery of water in satisfaction of Indian water rights claims, or from some other Federal source of funding, whatever they be. Generally, we've seen here in central Arizona that the more recent water rights have been set up so that there are trust funds whereby either the principal, or the interest, or both, are available for paying for the water from Central Arizona Water Conservation District. One of the earlier settlements, the Ak-chin Settlement, we have to seek annual appropriations from the Federal Treasury to pay CAWCD for the water that's delivered to the Ak-chin community.

Why Reclamation has an important interest in the setting of the various O&M rates for CAP

Storey: So because we have to pay the Indian portion of the rates, we're very interested. Do we have a role or a say in those rates?

Morton: We have a consultant role. We do not have a dictatorial role, or--

Reclamation has a consultative role in fixing O&M rates

Storey: Or a "yes" or "no" approval function.

Morton: --a yes or no approval function. No, we do not have an overriding approval function. We do independent evaluations, we make suggestions, i.e., why not defer this activity until next year. We've done a review of maintenance inspection of the facilities. We've determined that the lining inside this tunnel, the coal tar epoxy lining inside this tunnel is not in any distress. It doesn't make sense to us to go in and recoat it this year. Why don't you wait a year or two. Those are the kinds of comments we would be making based on our professional judgment, but the final say rests in CAWCD board and, in turn, they rely very heavily on the recommendations of their staff.

Storey: Well, that leads me into the next question, though, I think. How do we assure that the Federal investment in the CAP is being adequately protected through their O&M activities?

Morton: Well, we have a review of maintenance program, a ROM program, as we call it. We do ROM inspections now on a three- to six-year cycle, depending on the facility that we're dealing with. Dams, reservoirs, some key operating types of equipment that are subject to greater wear and tear than perhaps a canal prism. We might scrutinize these on a three-year cycle. I think the aqueduct is something we look at every five or six years now on that kind of a cycle.

Reclamation's review of maintenance program protects the Federal investment in CAP

Storey: Do we do that in conjunction with CAWCD, or do we go out independently? How does that work?

Morton: Right now, we do it in conjunction with CAWCD. We tell them what we want to see. They accompany us. There's dialogue back and forth between the professional expertise. The mechanical engineers and the civil engineers debate whether or not it makes sense to do some repair work or not to do some repair work. Generally speaking, a joint report is issued. The report will direct CAWCD, or any other Reclamation contractor project, on what they need to do to make the system efficient and effective in protecting the investment of the United States.

Storey: Good. Now, let's see. Yesterday we were talking about the Granite Reef Aqueduct. One of the questions I wanted to ask about is whether or not you were ever aware of any condemnations proceedings, and obtaining the right of way? What kind of issues are involved in that that you're aware of?

Morton: We had a lot of condemnations, some of which went against corporations, or family corporations, that involved United States senators, as a matter of fact. We condemned a parcel from Four-D Development Corporation, one of the four Ds being Senator DiConcini, which caused a lot of consternation in Washington, when some of his colleagues found out that we were condemning his property, and he had obtained through that condemnation settlement, increased over the appraised value by a factor of about three.

But, yeah, there's literally, I would just say in orders of magnitude, it's in the hundreds, not in the tens. It's not in the thousands. I don't know if it's 100 or 200 or 300, but certainly the number of condemnations associated with CAP must number in the hundreds.

Condemnations and their effects on CAP

Storey: Did that interfere with construction?

Morton: Actually not, because the United States' authority to condemn is well established, and if we fail to negotiate a price for various reasons--of course, under law, we are responsible to conduct an appraisal, and offer the landowner nothing less than what the appraised value is. So we can't lowball. We can only go in--if the appraisal says the parcel of land is worth \$10,000 an acre, and we're going to take 10 acres, we have to offer them \$100,000. So whatever the appraisal says is what we offer.

Then the negotiation may result in some adjustment one way or the other, and we've closed on a number of negotiated properties for 10, 15, 20, 25 percent over the appraised value for various factors. I mean, the highest and best use may have been established correctly, but development--the landowner was able to demonstrate the development would occur much sooner than what the appraiser had judged in his initial appraisal. Oftentimes just the threat of going to condemnation and the additional cost associated with condemnation, allows you to settle for more than what the appraised value is.

But when you get to condemnations, it's a very simple process. You need to demonstrate to the Justice Department that your appraisal is reasonable and fair, it comports to other transactions in the area, that you've made a *bona fide* offer to the landowner, that you have negotiated in good faith with the landowner, you've taken every objection that the landowner has laid out there on the table, and evaluated it. You have a history of negotiations, documentation of your evaluation of

the landowners objections, and if you're able to demonstrate that to the U.S. Attorney, to the Justice Department, they'll file condemnation. By filing condemnation, then the court grants you title right then. I mean, you make a deposit with the court in the amount of the appraisal, and then you litigate over the value. The landowner may come in with another appraisal, or a series of appraisals to counteract yours, but the bottom line is, in terms of slowing down or delaying construction, it's not a--there's a time lag there, certainly, but it is not a serious delaying factor in the scheme of things relative to construction, because once you file a condemnation, the court grants title within a matter of days after the condemnation has been filed.

Storey: So then you can proceed.

Morton: Then you can proceed at that time. Right.

Storey: Well, yesterday, as I recall, I started out with a question on Teton, which was intended to be the question before, "how did it come about that you became the chief of the environmental section in 1977?"

Morton: Teton had nothing to do with it.

Storey: No, no. That was just a preliminary. Chronologically it was a preliminary question.

Morton: Well, let me say this. As we've discussed earlier, I was working in the organization called the Operations Division. The Operations Manager initially was a former planner, Keith Pinkerton,

*Applies twice to become
head of the Operations
Division*

former city manager, I guess you could call him, of the town of Page, when he worked on the Glen Canyon Dam. He had worked in the Phoenix Development Office, which was the Arizona Projects Office predecessor for a number of years, and was a senior planner. He became the first operations manager in the new organization after the construction engineer came on board.

Keith retired and there were four of us who were vying for his position. I'm sorry, there were three of us who were vying for his position at that time. There were three of us that were GS-12s, the position was a thirteen. Several outside candidates--matter of fact, after Keith retired, for the first two years after Keith's retirement, the division chief position, the management position, was rotated amongst the three of us. We felt like, well, we've done a fairly good job, we'd all gotten good ratings, we should get reasonably good consideration when they had the funding to actually fill the position. So after two years of "acting," and rotating the responsibility amongst the three of us --

Storey: This is the chief of the planning division.

Morton: No, chief of the Operations Division. Planning had disappeared. It had been abolished.

Storey: Oh, yeah. I keep forgetting. This is the O&M function.

Morton: This is the O&M function. Commissioner Dominy's "Division of Irrigation" kind of job, but the O&M division. What we in Reclamation would refer to as the 400 division--water and lands. So after two years of rotating it, we finally

were able to hire a replacement. There were five of us on the short list. Three of us were old hands with the Phoenix area office, two were from the outside. The individual who was selected was Dan Fults, who ultimately ended up being, and just retired, I guess, as Assistant Regional Director in the Mid-Pacific --

Storey: Sacramento.

Morton: --in the Sacramento office, the Mid-Pacific region. Dan came to work for us as the operations manager, and I worked for him for a couple of years. I think that was probably '71, '73, '74. Probably about late 1974. Dan had a problem in the family, and his father was ill. He cast about for alternative locations that would be closer, and I think he transferred to Klamath, Oregon, as a project manager there, just so he could be closer to the location where his father lived. So immediately after Dan's departure, a vacancy notice went out again. By that time one of the three of us had dropped out, had gone to work for the construction organization, so there were two "old timers" left. So we applied again and selection was made. The selection was Jim Robertson. It's interesting that both Dan and Jim had just come off the Department Management Training Program, and had some priority hiring authorities for them. I don't fault the fact that they merited those positions that they were appointed to, but it was--

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BEGINNING OF SIDE 2, TAPE 2. JUNE 19, 1996.

Morton: It was kind of a blow to me that I didn't get the job, but I wasn't overly disappointed. But I could see that, in fact, the opportunity to advance in the O&M organization in the Division of Water and Lands was probably limited. Both Dan and Jim were young fellows. Dan would probably have stayed right there if they hadn't had a problem with an illness in the family. There's no reason to anticipate that Jim was going to move on in the near future. He had just, like I said, come off the departmental program and had just received a promotion.

Storey: So these were both outsiders.

Morton: Well, they were Reclamation people, but they were outsiders.

Storey: I mean, they weren't one of the two "old hands."

Morton: Yeah, they were not "old hands." That's right. So about that time a position opened up at the twelve level in the Environmental Division. I counseled with the Project Manager, and he basically says, "Well, your evaluation's probably right. The water and lands, the operations side of the organization is pretty stable. There doesn't seem to be much immediate promotion potential there. Certainly when we get into operations, ten years from now, there's a possibility for some additional grade structure in that organization, but right now it's role is somewhat limited. We're dealing with water allocations. We're dealing with theoretical Colorado River operations. We're dealing with water service contracting. But none

*Applies for job in the
Environmental Division*

of those activities will really produce a need for a higher grade structure until we get into the hard operational aspects of the constructed project, and that's ten years down the road."

So I concluded it would probably be best if I went to work in some allied organization that had maybe some more promotion potential. My background just really did not fit with the construction organization, which was the growing organization. It became apparent to me that the only other real potential for growth in the immediate sense was probably the environmental organization.

So I went to work in the Environmental Division. I took a lateral transfer to a vacancy that they had in the environmental organization, and basically took my workload with me, because I was working in operations, and as I explained earlier, what I was doing was writing parts of environmental impact statements for Orme and Buttes [dams]. Well, I just picked up those things and went over and worked in environment, ended up writing those same chapters, and in the case of Buttes, took on the role of coordinating the whole environmental impact statement--the draft environmental impact statement.

Storey: Who was the project manager you talked with?

Morton: Cliff Pugh.

Storey: Cliff Pugh.

Morton: Yeah.

Storey: Who was the head of the environmental section?

Morton: Dave Creighton was still the environmental chief. He had been the chief of the planning

organization. When the planning organization was abolished, Dave became the chief of the Environmental Division, and he was still there. So I went back to work for Dave Creighton, who five years previously, six years previously, had been my supervisor in the planning organization.

Storey: This would have been when that you transferred to the--

Morton: '76. Probably fall of '76 would be my guess.

In addition to Cliff, I also talked to Dick Shunick, who at that time was Cliff's deputy. That was about the time Cliff retired, '76, now that I think about it.

So I went back to work for Dave Creighton, and enjoyed a good working relationship. And, in fact, I learned a lot, because now I was being exposed to a whole different cast of characters in terms of education and expertise, talking with biologists and archaeologists on a day-to-day basis. You'd meet them across the room or down the hallway, but now I was sitting in a desk, and on one hand I had Dr. Gene Rogge, and on the other hand I had Mel Persons, [phonetic] and a few other folks, Dick Bauman [phonetic], and a number of people who've subsequently left the organization.

I think Jim LaBounty may have even still been there. I guess, Jim's still in the Denver office, but Jim--Dr. LaBounty--I think he had gotten his Ph.D. by that time, but he was still playing around with cycloids, a little fish. I was always giving him a hard time about counting scales. He taught me how to count scales--scales on a fish, that is.

So I had about six months or so there in the environmental division working away on

In the Environmental Division did what he had done in the Operations Division

trying to figure out what we would do with the Orme final environmental statement after we got several file cabinets worth of comments, and public hearing records, and transcripts, and trying to decide whether we should move forward with the Butte's statement or try and resolve the Orme issue.

President Carter got elected, and shortly thereafter President Carter announced that he was not going to fund any Reclamation programs. I think that was about mid- to late- January of 1977.

About three o'clock on a Friday afternoon, around the first of February, Mr. Creighton and Mr. Shunick summoned me up to Dick's office and said, "We want you to go to Washington. We need a spokesperson back in Washington. They're forming a team to evaluate the utility of the Central Arizona Project, and we want you to go to Washington and be the project representative on that team."

So for the next three months or so, I'd spend four days a week in Washington. I'd get on a plane on Thursday night, and take the red-eye back to Phoenix, and go in the office on Friday morning, and direct various individuals on what they were to produce for me: water studies, or environmental analyses, impacts on biota, impacts on species. Anyhow, I'd spend Friday in the office, Saturday in the office, catch a plane Sunday afternoon, fly back to Washington and spend four days in the office in Washington, evaluate various things that people were faxing to me. We didn't have computers then. Didn't have automated E-mail, so we'd get faxograms-- economic analyses. The water projects review broke each project down into four components: economic evaluation, environmental evaluation, social evaluation, public acceptability. I worked with individuals from the department. The only

The Carter "Hit List"

Asked to work in Washington, D.C., as the spokesman for CAP in the Water Project Review resulting from the "Hit List"

other field person on CAP was my counterpart with the Fish and Wildlife Service, Ecological Services Office here in Phoenix, Dick Morgan. Dick just stayed in Washington. He didn't have to go back to Phoenix and get analyses run. I had to go back and direct how the analysis should be performed, what the process should be--not the results, but the process.

We ended up preparing a report, and the bottom line was that the aqueduct system--the department and the president determined that the aqueduct system should go forward, that in fact, the allegations of economic and financial infeasibility were not well-grounded, that in fact, there was a dollar's worth of benefit or more for each dollar invested in the aqueduct system, that it was reasonable to conclude that the project would repay itself, that there were some adverse environmental impacts, but for the aqueduct system, they were not serious enough to curtail the project. On the other hand, the conclusion was that Orme Dam and Hooker Dam should be deleted from the project, that we needed to look--a decision would not be made immediately on Buttes, that Buttes merited collection of additional data before a decision would be made on what to do with Buttes, and in view of the potential economic--what's the word--

*Results of the Western
Water Review*

Storey: Benefits.

Morton: --infeasibility. Well, it was cheaper to deliver water to Tucson through the aqueduct system, Colorado River water, than it was [to build Charleston Dam]. So there was economic advantage in using the aqueduct system to deliver water to Tucson over Charleston. So the conclusion on Charleston was that we should evaluate the potential enlargement of the aqueduct

system to satisfy the primary water supply objectives of Charleston Dam and Reservoir. So of the five major components, we got a clean bill of health on the aqueduct system. We got basically a thumbs down on Hooker, and Orme, and we got a "no decision" on Buttes and Charleston, basically. Those decisions were reserved for some future date, after additional evaluation had been performed.

That was the conclusion that came out, oh, I think it was early in May, it seems to me, of 1977.

Storey: So about four to five months of this.

Morton: I went back on the first Monday in February, I remember that. It was like May 12 or 15, or something like that that the final decision was made. Then I spent another week or so back there in Washington finalizing the reports, editorializing the reports, putting everything into the files, and so on--closing up the business.

There were ten Reclamation projects that underwent that significant level of scrutiny. Then all of the other Reclamation projects that were currently in the construction stage, at least got a cursory examination. At the level of detail, Lower Colorado Region only had the concern, or was only involved with the Centra Arizona Project. But Oahe, Garrison, Animas La Plata, West Divide, Dallas Creek, Dolores, a number of other Reclamation projects were scrutinized, and each region or project office had at least one person, and sometimes two and three people. It seems to me that region six, North Dakota and South Dakota, I think they had three or four people back there at that time frame for nearly that four-month period of time, almost continuously working on Oahe and Garrison, it seems to me. Each region

treated it a little bit differently. Each region's programs were under a different level of scrutiny. The only other one that we had in this region that was under active construction was the Southern Nevada Water Project, stage two of the Southern Nevada Water Project. John Brown, who recently retired, as the Assistant Regional Director in Boulder City, he was number-two person in the planning office in Boulder City at that time. He was back there for about three weeks working on the Southern Nevada Water Project justification. But like I said, I spent roughly three months, February, March, and April, part of May, probably close to four months, I guess. Every week I'd spend four days in Washington, worked weekends, worked Fridays, use Sunday for travel.

Yes, quite a grind. When I came back to Phoenix, the bottom line was that Dave Creighton had been offered a job in Boulder City, and concluded he was going to accept that job. So the chief of the Environmental Division position opened up and I applied for that. I'd like to think that my efforts on my Water Projects Review at the Washington level had something to do with my selection as the project environmental officer, because I was selected for the position. I think it was toward the end of the summer, maybe September of '77 that I got that job.

I worked in that position until--well, at least I had the position until about 1983. Actually, I was--that's another story--but I was tapped by Regional Director Plummer to head up the program of getting distribution systems constructed for central Arizona non-Indian irrigators, in 1982, and for various reasons we were unable to establish the position, but I worked in that capacity from about 1982 until 1985. And, until they were able to establish the position and reassign me to it, I held the position as

*Becomes chief of the
Environmental Division*

*Heads program to get non-
Indian distribution systems
constructed 1982-1985*

Environmental Officer, but in fact, the current environmental officer, Bruce Ellis, acted in my stead for about a year after I was tapped to do non-Indian distribution systems.

Storey: Well, I'd like to continue, but we have again used up our time plus ten minutes, it looks like. So I'd like to ask whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Morton: By all means, yes.

Storey: Good. Thank you.

END OF SIDE 2, TAPE 2. JUNE 19, 1996.

BEGIN SIDE 1, TAPE 1. June 20, 1996.

Storey: This is Brit Allan Storey, Senior Historian of the Bureau of Reclamation, interviewing Larry Morton, the Assistant Area Manager of the Phoenix Area Office, in the Phoenix Area Office on June 20, 1996, at about ten o'clock in the morning. This is tape one.

Yesterday, as we were talking, you had just talked about coordinating the environmental statement for Buttes Dam, before you were actually appointed Chief of the branch. I presume that was a major environmental statement. What did that involve for this project? What kinds of things were going on there?

Morton: Well, we had, first of all, to determine exactly what the proposed action consisted of. In the case of Buttes, there were a number of components. There was the dam itself. There was the relocation of the railroad. There was a relocation of Riverside and Kelvin--portions of communities in Riverside and Kelvin. We had a bridge

*Coordinating the Buttes
Dam environmental
statement*

crossing, a road that goes up to San Pedro to San Manuel that had to be relocated and the roads associated with that bridge. So there were just a number of issues that needed to be explored in terms of what the proposed action consisted of, and generally the engineering organization reported to the Construction Engineer, who was responsible for defining all of that, physical features to be constructed associated with the Buttes undertaking.

What coordination of the Buttes Dam environmental statement involved

There was the hydrologic influence. How would the reservoir operate? How frequently would it be empty? How frequently would it be full? What was the range of storage? Because depending on the operation and the frequency of inundation, the impact analysis could vary. Various kinds of plants can exist under water for a short period of time. However, if they're inundated for thirty days or longer, they're probably lost. In other words, they die. Some cultural resources may be unaffected by inundation. Others erode away rather quickly if they're wetted at all. So we needed to have the input of the operations organization on how the reservoir would actually operate and the frequency of various stages within the reservoir relative to inundation. So the engineers, the hydraulic engineers, and the operations organization were responsible for providing that kind of input.

Once we had a good handle on the physical construction and operation, then various assignments would be made to areas of expertise on what the impacts of that type of construction or operation would be. The biological organization would examine things like impact on species, impact on habitat. The cultural resource community had surveyed the reservoir area, had an understanding of the cultural resources that

were located in the reservoir, and once they understood what the physical terrain disturbance would consist of and the inundation perspective was, the cultural resource staff would, first of all, analyze the impacts and then develop a mitigation plan, go through a consultive process with the state historic preservation office or the--what is it?

Storey: Advisory Council on--

Morton: Advisory Council on Historic Preservation, yeah. The biological resources would also undergo an impact analysis, and through the Fish and Wildlife Coordination Act we would consult with the [Fish and Wildlife] Service on their recommendations for mitigation. We would get feedback from the Arizona Game and Fish Department, other interested parties, and incorporate a proposed mitigation strategy for biological resources.

To the extent, and Buttes was one of those, that there were social impacts associated with the people in the area, there was additional transportation times because of the road relocation. There was additional costs associated with wastewater treatment and water supply for both Calvin and Riverside. The lower unincorporated areas around Winkelman would have been affected. So we had interviews with the engineering staff for those communities, for Gila County and for Pinal County.

For example, I had to meet with the Sheriff to determine what impacts we'd have on his operation, what impacts would influence any of the land resource managers in the area, and there were a number. I mean, that area is a checkerboarded mining area, quite a bit of copper deposits in the area. So there was at least three major copper companies that had interests in the area.

*Social impacts of Buttes
Dam construction*

BLM lands would have been affected, and so we consulted with the Bureau of Land Management. They had grazing leases. They had areas of significant environmental concern as defined by their own regulations that we had to get their evaluation for.

So generally the coordinator was responsible for, first of all, establishing what the parameters of the undertaking were through working with the construction and operations staffs and then ensuring that the schedule was developed and a budget was established and monitored, the budget and the schedule, and made sure the impact analyses and the proposed mitigations were all identified and defined, and then got various kinds of input, written input from all of the responsible fields and, in turn, tried to edit their writings to develop the environment statement into one coherent and consistent document.

Storey: A lot of coordination, in other words.

Morton: Yeah. You had to deal not only within Reclamation but outside of Reclamation as well.

Storey: Did you have a checklist?

Morton: Yeah. Generally, at the onset of any one of these undertakings we'd set out a checklist, and the number of individuals or entities on that checklist would expand exponentially as you got into the process. Everybody else had two or three other people you needed to talk to, it seemed like. I guess I'd have to say we obviously never talked to everybody, or we wouldn't have anybody at our public hearings, or when we submitted the documents to the public, we wouldn't get any comments. There was always that last

How the number of people consulted on environmental studies grew exponentially

opportunity for parties who had been uninvolved up until that point to also make input primarily on the draft statement. But they certainly had the opportunity to make their feelings known through the public process.

Of course, we'd hold at least one scoping meeting where we initially invited public comment, but it just seemed like those meetings, for some reason, were not very well attended. It wasn't until you put the words on paper and documented the undertaking and what you believed the impacts to be that people would come forward and say, "No, you're wrong. Here's some other things that you didn't consider that are very significant, at least to me, and we want you to include this in your final statement prior to making any decisions on whether you'll proceed with this activity."

So while the regulations pursuant to NEPA require at least one scoping meeting, I'm not sure that in terms of public input, the scoping meetings do a lot in terms of identifying potential impacts. I think that the professionals who prepare environmental statements can identify 95 percent of the impacts without scoping, and that other 5 percent you can have innumerable scoping meetings and you still will not coax those concerns out of the general public. It's not until a document hits the street and people become aware that something is really happening that the public concern reaches a pitch to bring that information out to you.

A case in point here probably would be most recently [we] had a situation where the city of Phoenix rezoned a parcel of land just north of the Granite Reef Aqueduct for the Sumitomo microchip plant. That rezoning request went through a number of public hearings and public meetings with the City Council, with the Planning

Scoping meetings were generally not well attended

How opponents of the Sumitomo plant in Phoenix are trying to involve Reclamation

and Zoning Commission, and there was little, if any, public opposition. Once Sumitomo started moving dirt out there, all kinds of activity and opposition to the plant began.

Now there's a movement afoot to recall one of the members of the city council as a result of what she did relative to getting the zoning changed. I mean, her vote on the zoning change was a key vote, and now they're attempting to recall her from her position as a city council person. You know, her position, at least public position, was, "How was I supposed to know? I mean, I invited public comment for months on end and didn't have any input whatsoever." So until there's something concrete, the public seems to be pretty passive in terms of making input to decisions like changing zoning or building major public works programs that do have impacts to the natural environment.

Storey: That particular example, Sumitomo, that is not connected to Reclamation, is it?

Morton: It abuts Reclamation-acquired land in north Phoenix. Here in the north Phoenix area, we have a detention basin that, in this case, is about six miles long by about a thousand feet in width, and the plant is located on the northern property line of this thousand-foot width. So it's right next to Reclamation land that's associated with a flood retention basin.

Storey: It's adjacent to us.

Morton: Right adjacent to us.

Storey: But it's not on us.

Morton: No.

- Storey:** It's not authorized by us.
- Morton:** No.
- Storey:** Yeah. I just don't want to confuse a researcher down the line.
- Morton:** But, in fact, the opposition to the construction of the plant has taken the attitude that since we are an abutting landowner, we should have demanded that the City Council prepare an environmental impact statement and submit it to us for our approval. I mean, the Federal Government often gets charged with imposing its will on the local citizenry, and in this case the local citizenry is objecting because we didn't impose our will. And, you know, there was no decision on the part of the Federal Government to be made. I mean, this is a private property owner.
- Storey:** And I presume that's our public posture?
- Morton:** Yes. But the same organization that is now in the process of recalling City Councilwoman Barwood is also objecting strenuously to the fact that Reclamation didn't impose its will on the city council and preclude the Sumitomo plant from being built.
- Storey:** That's interesting. I heard a discussion of this on NPR last night. I didn't realize it was next to Reclamation.

Morton: Oh, yeah. We've got a number of letters from the people who are attempting to impeach the councilwoman.

Storey: Dropping back to the Buttes environmental statement, we're talking about '76-'77, as I recall.

Morton: That's correct.

Storey: Which is, well, maybe six years or so after NEPA was really beginning to be initiated. And I think you've mentioned earlier that some of our early environmental assessments and statements were very small documents. What kind of a document are we talking about here?

The environmental document that was prepared for Buttes Dam

Morton: Well, the document that immediately preceded it-- and let me say that the Buttes document was never finalized, but it was in a preliminary draft stage and probably within two or three months of being submitted as a draft environmental statement and actually published. So it was pretty much along in terms of the content. The statement that immediately preceded it, of course, was the Orme draft environmental statement, and it was a document that was, I'm going to say, about four inches thick, single-spaced, back-to-back sheets. I mean, it wasn't copied on one side. The text was on both back and front of the pages. So I don't know how many pages that was, but I know that it was about four inches thick.

The Buttes statement, in a preliminary draft form, was in two-inch binders, double-spaced on one side of the paper. So it probably was going to be a volume of about two inches thick. Now, that preliminary draft did not have some of the tables, the appendix materials, so that did not include the appendix material. But it

would have probably been a good two inches, maybe two and a half inches thick at that time.

Storey: So in the NEPA process, things were evolving here.

Morton: We had some good guidelines by that time. CEQ had gone through their process. We didn't have definitive guidance within Reclamation, but we had a draft cookbook, if you will, that we could follow that was patterned after the CEQ regulations. It was somewhat more elaborate than CEQ regulations but gave pretty definitive guidance on what should appear in an environmental impact statement. So I think by that time we understood what an environmental statement should look like, both in terms of content and process.

The NEPA process in Reclamation in 1976-7

Storey: Staffing was also evolving. At that time, how many people were actually on the environmental staff, do you think, and what were the disciplines represented, and how were they involved in the Buttes statement?

Morton: Well, the overall responsibility, of course, was vested, or the environmental statement was vested, in the Project Environmental Officer, and at that time that was Dave Creighton when I was working on the Buttes statement. Dave was an engineer. As the lead coordinator, I had an engineering background, but I didn't really use the engineering aspects of my education. But, nonetheless, my title was a General Engineer, I think, at that time.

NEPA staffing in Reclamation in 1976-7

Mel Persons' principal role was also like mine, as a coordinator and writer. He was a soil scientist. I think at that time we had four biologists, and I believe we had two archaeologists at

that time. And we had another engineer who worked primarily in the water-quality aspects and also was liaison with the construction office. So what would that be? That would be four and two is six and four would be ten. So we probably had ten people. Oh, and a secretary. We had a clerical position, a GS-6 clerk or secretarial position. So we had about eleven. I think we had eleven positions in the Environmental Office, I think it was called, at that time.

The engineering organization under the Construction Engineer, there were probably two people dedicated full time to dealing with environmental statements and environmental mitigation. So part of their role, for example, on the Granite Reef Aqueduct when we went through the Granite Reef Aqueduct EIS we said, "Well, for each site-specific issue associated with the Granite Reef Aqueduct, when we get to construction, we'll reexamine it. For example, if there's a mitigation program associated with crossings for wildlife, somebody will oversee that. We won't let it slip through the cracks."

So these people were primarily geared to ensure that when the solicitations were prepared for construction and specifications were submitted for bids, that all of the commitments that were in the Granite Reef Environmental Statement were complied with. So the solicitation defined fencing and it defined what the crossing structures had to look like, and it ensured that if any cultural remains were found during the construction that the solicitation contained appropriate paragraphs to ensure that those cultural remains were properly protected and so on.

So that was about half of their role, was dealing with the implementation of the mitigation process throughout construction, and those two fellows also then would provide to us in the

environmental office the written material pursuant to the actual physical construction. When you ask, for example, "Well, tell me about the borrow pit that you're going to use? Where are you going to get your borrow? Where's your haul road going to be? As we developed this proposal, we're calling Buttes." And so, in turn, they would provide maps and drawings and written narrative on what the proposed action would constitute in terms of these secondary terrain disturbance types of activities so that we had a good picture of what was going on.

It was fine to say, "Well, the dam will look like this." But what goes into the dam? "Well, I've got to go, you know, five miles down the road here to get the rock that goes on the toe of the dam. The core of the dam is going to come from an impervious source that's six miles upstream, and this is how we're going to mine that material and how we're going to haul it to the site." So you needed more than just the fact that, "Well, we're going to build this dam." You know, there was a lot of terrain disturbance types of activities that had an effect on the natural environment that you needed to describe in somewhat detail. And so that was their role, the two fellows that worked in the engineering organization.

In the operations organization, I think that there was probably one primary person that dealt with the hydrology and the hydraulics of the reservoir operation. There was a person in the realty organization that described the kinds of land values that were involved, the types of land uses that would be affected.

There was another person in the contracts end, an economist who worked primarily in the contracting end of our operation. His role was to describe how the costs would play back in, what would be the economic costs to the community or

the economic benefits to the community. He would go out and get data on what we call multiplier effects of the dollar spent to the extent you spend a dollar to develop a labor dollar or whatever, how does that relate to impacts in the community. What would it do in terms of generating additional secondary economic values? So that was basically his role.

We had a number of contractors--cultural resource survey contractors, biological mapping contractors. We had cooperating entities or agencies like the Fish and Wildlife Service, Game and Fish Department, Bureau of Land Management. They all had their internal staffs, but to the extent we needed information from them, we had to pay for that information. So we had interagency agreements with other Federal agencies. We had cooperative agreements that had to be negotiated and monitored over the life of the agreement, to be sure that the payments were made, that the deliverables were delivered, that the vouchers were correct in terms of the costs and so on. That involved our contracts organization. So there was a portion of one person's time was spent just on agreements and contracts to ensure that we were getting the information that we needed to properly assess the impacts of what we were proposing to undertake.

So all in all we probably had about twenty people, twenty FTEs, within the whole structure of the office, dedicated to the environmental impact process. In the case of Buttes, we probably had five contractors on board. I'm not sure how many people they each had, but several people for each contractor.

Storey: Working on the environmental statement?

Morton: Working on producing data for environmental statement, yeah.

Storey: Now, when you say working on the Environmental Statement, let's take three different groups. The group that actually worked for Reclamation in the project office, were they working exclusively on Buttes or were they working on a number of environmental issues all at the same time, generally?

Morton: Generally the latter, yeah. The workload would be spread around. At the time we were working on Buttes, we were also trying to finalize the documentation for the Orme statement, respond to the comments on the Orme statement. We were also beginning our preliminary work for the Salt-Gila Aqueduct.

So, for example, had our archeological staff was administering at least one or two contracts for cultural resource surveys along the alignment of the Salt-Gila Aqueduct. And then, for example, Mel Persons tended to be the contact with the construction organization to make sure that the commitments that had been made in preceding statements were being properly followed up. So he was oversighting what the Construction Engineer and these two members of his staff were actually doing. So there was some checks and balances to make sure we were living up to the commitments we had previously made.

So, yeah, I guess we couldn't say we were working exclusively on any one thing. It always seemed like there were two or three or four irons in the fire at any one given point in time.

Storey: How about the contractors? Had they been hired exclusively to work on Buttes, or were they working on other things for us also?

Morton: Well, it varied. Many of the contractors had proposed and been awarded previous contacts on earlier environmental documents. So some of them were new to us. But, for example, Arizona State Museum was a major contractor on Buttes in terms of cultural resource surveys. They also worked on the Granite Reef and Orme. ASU [Arizona State University] Department of Anthropology, I think they had a couple of different contracts at that time.

END OF SIDE 1, TAPE 1. JUNE 20, 1996.

BEGINNING OF SIDE 2, TAPE 1. JUNE 20, 1996.

Storey: ... and Associates have done economic studies?

Morton: They have done economic studies for us on the Granite Reef, and they were one of the contractors that was furnishing data and analyses on Buttes, Great Northern, I believe. Well, they didn't have a Buttes contract, but they had a Granite Reef contract and a Salt-Gila contract.

Storey: Doing what?

Morton: They did social and economic impacts as well. They did a lot of community analyses for us. Later on, one of our major contractors was DaMes & Moore, but that was for the study of alternatives to Orme Dam. That was somewhat later in the '79 through '84 time period. But as far as a contract effort, they not only were a consultant, they also managed the entire program on our behalf. They had a number of subcontracts and they managed the subcontracts for us, and they were our prime

contractor for the Orme Dam alternative study. That was probably a \$12 million contract by itself.

Storey: What about the other Federal agency, the other agencies, what were they doing? Were they saying Joe's going to work exclusively on Buttes, or how did that work?

What other Federal agencies were doing on the Buttes Dam environmental studies

Morton: In the case of the Fish and Wildlife Service, their Ecological Services Office here at Phoenix usually dedicated one person to any given program, but not exclusively. In other words, we would have one contact with the Service on Buttes, but that individual might only spend 50 or 70 percent of his or her time on Buttes at any given time frame. So in the first year they might spend 50 percent to do some task activity on our behalf. Later on they might be working, in any given month or quarter or whatever, they might be working upwards of 70 percent of their time. But it was not a full-time job in terms of their efforts.

We probably funded for the Service in Buttes an average of one FTE, but that was probably in terms of clerical support and their management activities as well. That was probably a quarter of an FTE, and then the primary contact was probably a three-quarter-time type position.

[Arizona] Game and Fish usually worked on two fronts. They always liked to be a contractor, and so they would often bid on our proposals to do the research for us or to collect habitat data or habitat maps or monitor wildlife corridors or wildlife movement or give us survey data on various species. They might do bird count types of things and give us species densities and diversities for all the bird species that might be found or were prevalent in the Buttes area.

How Arizona Game and Fish was involved in the Buttes Dam environmental studies

So one arm of the Arizona Game and Fish Department was a resource contributor. Their wildlife managers were actually responsible for managing wildlife in that area. Then they would tend to be the reviewers, the critiquers, the inputer of state types of concerns or things that should be considered. They became involved in actual documentation of the analyses. Rather than actually doing an analysis, they'd come back and say, "Well, we think the impacts are really greater than you've identified here, or here are some other types of impacts that perhaps haven't been identified by your staff." So they would work very closely with U.S. Fish and Wildlife Service in providing those kinds of critique and input, whereas, another arm of the Game and Fish Department would be out there, actually field data collection types of activities as a contractor.

Storey: Let's talk about money for a little bit. Do we have any idea how much the study cost? What I'm trying to get at is was it funded out of reimbursable monies and were you told, "You're budget is X," or were you told, "Go do the project and don't worry about the --"? How did all this work? (laughter)

Morton: Well, funding was a constraint. But, in fact, the funds were appropriated funds, and we would project our budget needs two years in advance and request those funds through Congress. Generally, they were appropriated. Sometimes for various reasons Congress chose to reduce what we had requested, and then in turn we'd have to adjust our schedule based on the amount of funds that were actually appropriated.

In the case of Buttes, we would project what we would need for contracts and for staff support and for public meetings and all the rest of

Funding environmental studies

the costs that actually went into the preparation of our environmental impact statement. That would go into our budget request and would be scheduled over a reasonable period of time that we thought we could perform the analysis and produce the documents.

As appropriated funds, of course, they were subject to the cost allocation, and those parts of the cost allocation that were reimbursable were assigned to CAWCD or other reimbursable entities for repayment. Those costs that were nonreimbursable like flood control or water supply for Indian communities, they would be identified with those entities, just like any other project cost. So there was nothing exclusionary or different about a Buttes Environmental Statement or a Tucson Environmental Statement. It would just be factored in as a project cost, as would the cost of litigation be factored in as a project cost.

Storey: And I presume that this discussion of Buttes pretty generally is applicable to the environmental process?

Morton: Yes.

Storey: Did it change over time?

Morton: Not really. I mean, even today it's still the process we use. We no longer have any major facilities except those that are on the Indian communities that remain to be constructed. We still do environmental statements, but they tend to be based on applicants' needs. So in this instance, if an applicant comes to us and for whatever reason wants to utilize Reclamation land or request the Secretary to make a decision, for example, to transfer a water contract from a point of use at one

location to a different location. The applicant is responsible for funding that effort.

As a result of self-governance and as a result of self-determination acts with Indian communities, the recent legislation on self-governance establishes a nation-to-nation relationship between the United States and the respective Indian communities. So at least the two central Arizona communities that have been established as self-governance tribes, that's how we worked with them. In fact, they will be responsible for producing the environmental statement associated, for example, with their delivery system and development of agriculture lands on their respective communities.

Storey: Has the staff grown over time? About the same? What's going on there?

Morton: The professional staff, the professional environmental staff, the archaeologists, environmental specialists, and the biologists has remained fairly constant. Like I said, in '76 we had about eleven people in the environmental office. I think they have fourteen today, and I think that's been fairly constant over the last twenty years, somewhere between eleven and we might have had about fifteen or sixteen.

We oftentimes will do in-house studies, and we may have summer interns or summer trainees that come on board that will increase our staffing levels to maybe eighteen or twenty during the summer. We did several surveys of reestablished vegetation upstream of the canal, and we went out and did transects. We hired several biology majors to accomplish those transects. We've had instances where graduate students in archeology will join us for the summer and do field surveys on areas that we anticipate

Staffing environmental studies work over time

will be disturbed in the near term. Rather than hiring a contractor, we'll use our own forces to do the cultural resource surveys.

So, you know, during the summer I think we may have maxed out at as many as twenty people in the environmental division. But in terms of full-time, permanent employees it's averaged around twelve to fifteen, I imagine, in the last twenty years.

Storey: You mentioned that another of the projects you were engaged in was looking at the FES for Orme. What was going on? Was this after the meetings where everybody came and said, "No, no, no, no.!" Or were we still proceeding with the project at that point or what?

Morton: I think that the uproar that resulted from Orme, the threats of litigation that were espoused, the congressional oversight that was being exerted, in terms of making a decision, really negated our ability to make a decision. The agency was really not prepared to make a decision concerning Orme.

The professional staff in Phoenix felt like we, at least, needed to be prepared if we were directed to go to a final environmental statement to respond to the comments, and that was one of the things I did as time allowed was to categorize all of the comments and, working with other staff, attempt to respond to each major category of comment. If there was a comment concerning dislocation of Indian community members, we would try to characterize all of the -- there might have been fifty comments like that, and we tried to aggregate those comments so that we were focusing on the pertinent issue and then try and develop a response to that. And that's basically what we did was we developed categories of comment, because to respond each individual

*Development of
documentation for a final
environmental statement
for Orme Dam*

comment would have taken forever. There are literally that many comments, file cabinets full of comment. So what we did in Phoenix was to lump the [similar] comments all into one category and then prepare a response.

It was not a real high priority work because there was no emphasis to proceed to finalize that environmental statement and get on with construction, because [we] felt like that was a fruitless effort, that, in fact, if we did that we would end up in court. So it just wasn't fruitful to pursue that chain of activity. So what we did was kind of wrap it up, put it to bed, and wait for future guidance. The future guidance came in another year, in 1977, with a determination by the Secretary of the Interior and the President [Carter] not to proceed with Orme Dam.

Storey: In the Carter "hit list."

Morton: In the Carter hit list. But there was about a year hiatus there where it just sat in limbo, I'd have to say, because the Regional Director, the Commissioner, the Secretary, nobody wanted to move forward with finalizing the document, nobody wanted to make a decision to proceed to construct Orme Dam. It would not have been a pleasant decision to have to make.

On the other hand, the local sponsors were not terribly enthralled with abandoning Orme Dam. So I'm sure that if the Secretary or the Commissioner had made a decision to abandon Orme Dam there'd have been a hue and cry in the other direction. So, since there was no resolve to proceed to finalize the statement, we just kind of wrapped up all the loose ends and stuck the results in a file cabinet and said, "When somebody's ready and willing to proceed, we've got the material to go forward."

Orme Dam was finally cancelled during the Water Projects Review resulting from President Carter's "hit list" of water projects

Storey: We're ready.

Morton: We're ready to publish the document. But we never got the direction to publish the document. (laughter)

Storey: Yesterday at the end of the interview you talked about being appointed to represent CAP in Washington over the "hit list." I presume CAP was one of the hit list projects.

Representing CAP in Washington, D.C., during the Water Projects Review

Morton: Right. It was one of the ten base projects to undergo rigorous scrutiny.

Storey: What did that involve? You were saying you were back there Monday through Thursday, basically, working. Who were you talking to? I don't think probably you were sitting in the Reclamation offices trying to convince Reclamation. How did all this work?

How the Water Projects Review worked for CAP

Morton: Well, it was a departmental review and, of course, that involved all elements of the Department [of the Interior]. At that time, there was a small office in the Department called the Office of Environmental Project Review. A staff member from that office chaired the CAP committee. All of the offices of the assistant secretaries and many of the agencies within Interior also had representation. The CAP team, who was responsible for collecting data, performing or getting actually the bulk of the analyses were prepared by Reclamation in Phoenix, and that was the reason I came back to Phoenix every week.

But the [CAP] committee was responsible for preparing a report. The report was about sixty pages long, if I remember right. And the representation on the committee included a representative from the Fish and Wildlife Service.

The chairman, as I said, was from the Office of Environmental Policy Review. The Fish and Wildlife Service had a representative. The Bureau of Indian Affairs had a representative. Reclamation had a representative.

Storey: That was you.

Morton: That was me. There was a representative from the Assistant Secretary for Land and Water [fn. the Assistant Secretary was Guy Martin 1977-1981]. At that time, it was Land and Water Assistant Secretary. And then there was a representative, Joe Boyle, from what's now the Assistant Secretary for PMB. I can't remember what it was called. Program--

Storey: Management and Budget?

Morton: Program Management and Budget. At that time, it had a little different connotation. I don't remember exactly what the Assistant Secretary's terminology was at that time. But it was the Program Management and Budget arm of the Department, and Joe Boyle was a representative from that part of the organization.

So how many was that? Five? Six? Let's see, Land and Water, PMB, Environmental, Service, BIA, and me. So there were six, six of us.

Storey: This was a committee exclusively for CAP?

Morton: Yes. This was just a CAP committee. And then the other Reclamation programs that were under scrutiny had similar committees. I think, as I said the other day, Great Plains Region, Region 6 at that time, had about four people back there serving on the two committees; one for Garrison

and one for Oahe. They had like two representatives on each of those teams. So they were a little better staffed than we were at the time on CAP.

Storey: So how did all this work? You went into the committee and you sat there, and looked at one another, and got up and . . .

Morton: The first week that's exactly what we did. Why are we here? (laughter) It was interesting that, at least in the case of the Deputy Assistant Secretaries or the representatives from the Assistant Secretary's office at that time, were from the prior administration, and I would have to say as was the case at least for the representative from Water and Lands, his whole thought process was, "How in the heck am I going to find a job and get out of town." (laughter) He ended up being Deputy State Director for Bureau of Land Management, as it worked out, in Wyoming at the time.

The first week, the first week in February -- maybe it was the seventh of February, something like that, it seems to me--when we first assembled back in Washington to get our direction and charge, the leadership wasn't sure exactly what the role was. Many of them were appointees, as I said, from the prior Republican administration. The new Democratic administration had appointed a Secretary. I believe that Secretary Andrus had already been confirmed, but he did not have his appointees in place yet. So the incumbents from the prior administration were still in-place, and they weren't exactly sure of the game plan at that time.

So the first week, I would have to say we kind of wandered around in a daze wondering,

Uncertainties in the early stages of the Water Projects Review

well, what is the role that we're suppose to fill and what is it that the Department wants to produce, and what is it that the President needs to make a decision? All we knew at that moment in time was that the President and the Office of the Executive, through OMB, had made the decision that as far as the budget request was concerned these ten Reclamation projects were going to have a zero budget request in what was forwarded to Congress for the Administration budget for Fiscal Year '78. This was 1977, so Congress would be looking at the '78 budget, which was pretty important, as far as Reclamation was concerned, because the programs that were under detailed scrutiny were major construction programs and formed the backbone for Reclamation's budget at the time.

Subsequently, the guidance became somewhat clearer, and it was determined that the Secretary wanted a relatively detailed report which described the biological environment, well, the environmental impacts, the economic costs and financial arrangements, described what the project consisted of physically.

Included in the environmental impacts, of course, were social impacts and cultural impacts, biological impacts, impacts to Native Americans, impacts on existent resources, economic types of impacts and so on for the projects as a whole. And then in the case of CAP the focal point was the aqueduct system and each of the four reservoirs.

So, like I said, that report was about sixty pages long, and then there was a summary report that was presented to the executive. I don't know that the President ever saw it, but at least it went through the Office of the President. That report, in the case of CAP, was about eight pages, I think. When you boiled it all down, it was all on one piece of paper. I mean, the final decision document consisted of one piece of paper, one page, one side, single spaced.

Final report for CAP in the Water Projects Review and how it was used

Storey: Was that prepared by the committee?

Morton: No. No. The final conclusion came directly from the Executive Office Building, the Old Executive Office Building.

Storey: That one-page summary.

Morton: One-page summary. But the sixty-page document that was presented to the Secretary and then the eight- to ten-page document that went to the White House were prepared by the [CAP] committee, and the only difference was one was a distilled version of the other.

The committee sat and laid out a scope and then where two agencies were responsible, the two agencies would get together and debate and try and quantify. You know, the charge was we would come back with a departmental consensus report. It was not going to be Reclamation's report, it was not going to be the Fish and Wildlife Service's report. So I spent a lot of time with my counterpart, Dick Morgan, from the Fish and Wildlife Service, taking our respective two impact analyses on biological communities, ecological resources, and so on, and trying to reach agreement, you know.

The CAP committee report for the Water Projects Review represented a consensus of the Department of the Interior

A case in point might be how many acres of upland habitat would be lost and what were the types of species that utilized that upland habitat. I don't know, in gross numbers we were probably not too far apart. I think we started off with like my analysis said 12,000 acres and his analysis said 16,000 acres, and we tried to match those. This was before the days of geographical information systems where you could take two maps and overlay them and figure out exactly where your data differed. I mean, we were talking quad map scale. It was not very precise.

So Dick and I spent a lot of time just comparing respective analyses. I mean, we're talking 320 miles, 330 miles worth of canal that we had to analyze. We were talking in terms of each reservoir, anywhere from 10,000 to 20,000 acres within the reservoir. And we probably had better data than the Service did, and at least on Orme Reservoir that was very well documented. I mean, the maps had been agreed to before the drafted environmental Orme statement had been prepared.

But on Hooker and Charleston, there was a distinct lack of data, you know, and Buttes was kind of in the middle because we were within a couple of months of publishing the Buttes statement, if we'd have gotten the go ahead to proceed with it. So the data was pretty good on Buttes, too. It wasn't to the degree that the Orme site was.

But much of the southern portion of the Salt-Gila Aqueduct and most of the Tucson Aqueduct, those were future activities. They'd not been mapped. Had a lot of anecdotal information but not a lot of precise data that we could both agree on. So it was a give-and-take proposition. I'd get maps flown out from Phoenix and he'd get maps flown out from Albuquerque and we'd sit

How Reclamation worked with other Department of the Interior bureaus to develop consensus for the CAP Water Projects Review report

there and pore over the maps for hours on an end to try and narrow our differences. I think we agreed the aqueduct system, like I said, I started at 12,000 acres and he started at 16,000. I think we agreed on about 14,300 or something like that.

But that was generally the process. I think probably over half of my effort was trying to--

END OF SIDE 2, TAPE 1. JUNE 20, 1996.

BEGINNING OF SIDE 1, TAPE 2. JUNE 20, 1996.

Storey: [This is] an interview by Brit Storey with Larry Morton on June 20, 1996.

Over half your effort was--

Morton: Trying to quantify the biological impacts, trying to reach agreement with the Fish and Wildlife Service since that was our assignment. The directed assignment was: the Department was going to go with only one analysis and all agencies who had a role or a stake in that analysis had to agree to it.

So of the three months, three and a half months I spent back there, I'd have to say at least half of my time was spent working with the representative of the Service, and it was generally on a one-on-one basis. There's an empty office down at the end of the hall on the fourth floor of the Interior Building. They gave us that office and they said, "Go to it."

Much of the coordination work for the CAP during the Water Projects Review was with the Fish and Wildlife Service

Storey: They locked you in.

Morton: They basically locked us up. (laughter) You know, it was our responsibility to get whatever resources we needed to resolve the various issues that were in conflict, and they were generally just quantification types of issues--how many acres are involved, what's the value of the resource, wow

many species are involved, etc. What will be the net impact? How can you mitigate it? Are you willing to mitigate it? How much will it cost to mitigate it? Those were the kinds of things that we evaluated and negotiated, I'd have to say. I mean, it was truly a negotiation process because neither one of us could say that our data was absolutely correct as opposed to the other person's data.

Had similar types of dialogue with the Bureau of Indian Affairs, primarily because of the impacts at Orme to the Fort McDowell community. That was not a real difficult negotiation because they had participated. BIA had participated in providing data for the Orme draft environmental statement. So it was pretty consistent. We reached a consensus on most of that information. It was presented in a matter of a day or two, I think.

The rest of the time was primarily one of developing the report, going through the review process, ensuring--well, let me back up. Another big component was the economics. I spent a lot of time with Joe Boyle, [from] the Assistant Secretary for PMB, educating him as to what the economics of CAP were, because Joe was of the impression that it had a B/C ratio of about one-tenth to one, in other words, a less than feasible B/C ratio. So we spent some time.

As a matter of fact, I did have to bring in some additional support. I brought Allen Kleinman [phonetic] in, who was a regional economist at that time. I brought Allen in and he assisted me in explaining and educating Joe on both the economics and repayment aspects of CAP. So I did get some professional assistance in the field of economics and the field of repayment.

But we did spend a lot of time with Joe as well, and eventually, you know, we reached

agreement that the B/C ratio for CAP was about one and a half to one but that the Charleston Dam, for example, was not economically efficient and that there were better ways to provide the same benefits. So the conclusion not to build Charleston Dam or to delay the construction of Charleston Dam until there was a need for the water within the local area [was made] as opposed to conveying the water to Tucson, the better way to provide Tucson with water was to use the aqueduct system.

So that all came out in that process, and we finally developed a theme, a finding, that both Reclamation and the other components of the Department could agree on, and putting that into a coherent written report was our final assignment. I wrote a lot of it. But, in fact--I can't even think of his name now, but the fellow from the Environmental Projects Review Office was the principal officer. I think Joe Boyle and I were secondary authors of the document. And then the fellow that headed up the Office of Environmental Project Review actually edited the final version for submittal to the Secretary.

- Storey:** Mr. Boyle was a Carter appointee?
- Morton:** Mr. Boyle was a Civil Service person. At that time, his boss was a Ford appointee, was from the Republican administration. By the time I left in May, I think Joe did not have a boss yet. I think he was still without a boss.
- Storey:** What about the other appointees who were political?
- Morton:** As I said, the people who were left over from the Republican administration moved on, and as time evolved--by May, I think, most of the political

appointee positions had been filled within the Department. But any given week you'd see a new face in the management meeting.

That was one thing that happened. Every Monday you went, collectively went down to the Secretary's conference room, and all the Deputy Assistant Secretaries and/or Assistant Secretaries would show up, and the chair of each of the teams would make a short five-minute presentation or respond to questions. Those persons that were in higher authority, they changed over that time. Got a new face or a couple of new faces every week when you went to the status briefings.

Storey: Would Dan Beard have been among those?

Morton: My recollection was that, yeah, Dan was a Deputy Assistant Secretary, but I think he came just a little bit later. I don't think he was involved in the original water projects review. Certainly by the end of the Carter Administration he was Deputy Assistant Secretary. That was the first time I met Dan was when he came out to Arizona to participate in the execution of the Indian water service contracts in December of '80, I guess it was.

Dan Beard and Larry Morton during the Carter Administration

Storey: Just before the administration went out of office.

Morton: Yeah. The administration was a lame duck by that time; but the election had taken place.

Storey: You'd be working with BIA and Fish and Wildlife Service; primarily, I gather, Fish and Wildlife Service.

Morton: Primarily with the Service and then, I guess, second--first with the Service. I don't know, maybe 50 percent of my time was dealing with the

Service and maybe another 25 percent with PMB with Joe Boyle and then maybe 10 percent with BIA or 5 percent specifically with BIA and then the other 15 to 20 percent with a collective effort, team meetings, status briefings for assistant secretaries or deputy assistant secretaries. Just individual time to actually write documents.

Spent some time, of course, with just the Reclamation staff. Back then, I mean, it was a real learning experience for me. I got to know all of the branch chiefs and Washington staff people within Reclamation. It was a good learning experience from that perspective, too, because I got to know everybody.

I don't know, once every two weeks or three weeks I'd get a note saying, "Commissioner Higginson wants to see you." So I'd go up and spend forty-five minutes or an hour with the Commissioner and explain to him what was going on from my perspective, where we were in the process, and kind of keep the Commissioner up to speed as well.

The folks from the other regions who were back in Washington were doing similar kinds of activities. I don't think we ever sat down as a group and had a sharing process. We'd see each other on a Monday status conference and then we'd kind of all go our separate ways. Nobody from within Reclamation ever said, "Let's get everybody together and deal with this collectively." It was pretty much a project-by-project type of analysis, and the groups within Interior that were assigned the responsibility were pretty much autonomous for each project that was being examined.

Storey: So that's what you did Monday to Thursday, and then Thursday you'd head for the plane and the

Morton met most of the Washington, D.C., staff of Reclamation

Reclamation's various regional representatives for the Water Project Review did not meet with one another

folks in Phoenix were saying, "Uh-oh. Larry's coming tomorrow."

Morton: That's right. (laughter) Yeah. I'd show up on a Friday and they'd say, "Well, what did you do this week?" And I'd say, "Well, you know, we have a problem here on the Salt-Gila Aqueduct, Reach 4. You know, Dick Morgan says there's so many acres and, you know, this is wetland down here and you gave me maps and it shows it being upland desert habitat. Why are we apart here?"

They'd go out and take pictures or, you know, consult books or documents that they had. So basically I'd come in with a list of about fifteen or twenty things that I needed information about, and they would scramble on Friday and Saturday and try to get what they could. By Tuesday of the next week, here would come a CARE package overnight express from Phoenix saying, "Well, here's the rest of the stuff you asked for."

So that was generally the process--was I'd go back, spend a day, two days with the staff in Phoenix and try and get better information or try and clarify what was in conflict with the people I was having to deal with in Washington.

Storey: How was your time handled in this period? Were you given overtime for working Saturday?

Morton: No. (laughter)

Storey: Or anything?

Morton: No. No.

Storey: Time and a half?

Morton: No. I didn't. As far as I recollect, I didn't get any overtime, or time and a half, or--

Storey: Or comp time or anything?

Morton: Or comp time or anything. When we got done, when the process was completed, I got a very nice commendation from Secretary Andrus and a letter of appreciation from Commissioner Higginson, and I think I got a -- I'm going to say it was \$2,500. I think that's what it was, was \$2,500.

Morton receives an award for his work on the CAP Water Projects Review

Storey: An award.

Morton: For an award from the Regional Director for that effort. But, yeah, I'd spend most of my day on Sunday flying back to D.C. and I'd get home about ten or ten-thirty on a Thursday night and be in the office the next morning by about eight or so. So I didn't get any overtime for traveling.

Actually, in Washington I can't say that I spent any additional work hours. It was just a straight eight-hour day in Washington. Started a lot later than I was used to. Normally, I think, Washington comes alive about nine o'clock and everybody goes home about six. So I generally am a morning person, so that was a change for me. But I think they were straight eight-hour days when we worked in Washington. But certainly my efforts on Saturday and then travel time on Sunday were compensated for in terms of a performance award or special achievement award.

Storey: When you were back in Phoenix, were you expected to brief the project manager? How did that work?

Morton: Yeah. Normally, I'd get the technical staff started on the most important aspects of the data or

information or analyses I needed for the following week. By ten or so on that Friday I'd go brief the Project Manager and his immediate staff, the Assistant Project Manager, the Public Affairs Officer, the Environmental Officer. Dave Creighton would be at that session.

Storey: This was still Dick Shunick?

Morton: Yeah. Dick was the Project Manager. Dess Chappellear was the assistant. I think Bob Walsh was the Public Affairs Officer at that time. Dave Creighton. Sometimes Andy Dolyniuk would sit in, the Construction Engineer. Jim Robertson, sometimes he'd sit in.

Storey: Were they telling you how to do it or what?

Morton: No. Surprisingly it was just I'd tell them what we were doing, and they'd ask questions. But I don't know that I ever got any real direction on how to do it.

Morton was not directed from the Project Office during the CAP Water Projects Review

I think the process had been pretty well defined in the Department. You know, the ground rules were there--this is what we want, this is what you have to cover, you have to reach agreement with your counterpart on any issue in contention, and the principal issues of contention were impact to ecological and biological resources, economics, and impacts on Native American communities.

So I think our marching orders were pretty clear after the first week. There was a lot of confusion the first week, but after that I think the direction was clear. The Project Manager wanted to know what was going on, but he couldn't do anything about changing what was being done. I mean, it was just a case of determining the facts as Reclamation staff understood them, the technical

staff was able to present them, and then how well did I negotiate with my counterpart in resolving conflicts.

The answer was going to be one consistent number from the Department. It was not going to be, "Reclamation says this and Fish and Wildlife says that," or "Reclamation says this and OMB says that or PMB says that."

Storey: So after the project was over, you came back to Phoenix. What did they put you on then?

Morton: You know, I really can't remember. (laughter) As we sit here today, that one -- there was, let's see, May until like the fall. May, June, July, maybe even into August, I can't, for the life of me, think as I sit here today, what I did.

Storey: What did you do in the fall?

Morton: Well, in the fall I remember I filled out a 171 and applied for Dave Creighton's job. I think at that time we were beginning to do our detailed planning on the Tucson Aqueduct, and it was probably about that time that we were laying out our basic data collection program for the Tucson Aqueduct, and the debate was raging on whether we should locate the aqueduct to the west of the Picacho Mountains or to the east of the Picacho Mountains.

Applies for Environmental Officer job

Storey: And that desert tortoise issue you talked about.

Morton: And then the desert tortoise issue and the divisibility issue, the visual impact issue.

Storey: Before we get too far away, I should ask you, how long was it before you got a decision on your work in Washington?

President Carter's decision regarding CAP came quickly after the Water Projects Review report

Morton: Rather quickly. I think we had done a good job of briefing. You know, I'm going to be real arbitrary here, because I can't really recall the exact time frames. But it was like we finished up the detailed report, the sixty-page report in one week, like the end of one week. By the end of the next week, it had been distilled into a ten-page document and went to the White House. By the next week, the decision had come back from the White House and they'd distilled the ten-page document into a one-page document that basically was attached to a press release and said, you know, this is what President Carter's decided. It was all encapsulated in a one-page attachment to a press release.

So the decision came about very readily. I mean, it was not a long, drawn-out, deliberative process at the upper levels of the Department and within the offices of the White House. It went real quick.

Storey: But at that point, we knew Orme wasn't going to go.

Morton: Right. Right.

Storey: So we had to find an alternative, is that correct?

Morton: Well, and that decision to proceed along those lines was probably -- my recollection is it was after I was appointed to be Environmental Officer. It was like late fall of '77 that the Bureau decided, or it may be even into the winter of '78 before the Bureau decided, Reclamation decided that, "Hey,

Orme Dam is dropped from CAP

we've got another opportunity. We need to revisit this. While Orme may be deleted from the project, the authority is Orme or suitable alternative, and we need to get the authority to begin looking at alternatives. So it was a five- or six-month time lapse between the decision to delete Orme and the decision to try and seek authority from the Department to look for alternatives to Orme.

I can remember the types of things we were doing was we had maps, releasable maps. The maps all show Orme Dam and Reservoir. What do we do? We developed a little stamp, first of all, just an ink pad type stamp that says, "May such-and-such, 1977, President Carter deleted Orme Dam from the project." We stamped all these maps that had the location of Orme Dam on it that we were distributing. I mean, these were maps that had been prepared for public use. They were like the frontispiece for some of our reports or other documents that we'd prepared.

I remember the first thing we did was develop this stamp so we could stamp all of the drawings that were frontispieces or were provided to the general public when they said, "I'd like a map of CAP." Well, how do we indicate Orme Dam isn't there. I guess today we probably would have taken a circle and put a slash in it that said, "No Orme Dam." But at that time, we actually wrote a little narrative and stamped it on all of our drawings that we distributed.

We stuck Buttes on the shelf. We stuck Orme on the shelf. We hadn't really been working on Hooker or Charleston. Salt-Gila, if I remember correctly, the draft had been completed and we were finalizing. We were putting final touches on the Salt-Gila Aqueduct statement, and we were

involved in the planning and environmental impact analysis associated with at least Phase A of the Tucson Aqueduct.

In recollection now, we were probably working on the entire Tucson Aqueduct at that time, because the original concept was that the Tucson Aqueduct would terminate northwest of Tucson. It wasn't until about that time or shortly thereafter in '79 or so, '80, that the City of Tucson began lobbying to extend the aqueduct. The aqueduct now extends to the south of Tucson. It's probably twenty-five miles longer now than it was originally envisioned.

In our initial activity associated with the Tucson Aqueduct, I think we were looking at it as one environmental impact statement. But then it became obvious that the decisions on where the terminus should be, what the alignment should be, what the capacity should be, were not right because there's a lot of deliberation that needed to be made. And so we split the Tucson Aqueduct up into two phases, and the one phase took the canal down to the vicinity of Marana, and then Phase B took the canal from Marana down to the south boundary of the San Xavier Indian Reservation.

So that was a subsequent decision. In fact, as a result of the difficulty in reaching a decision on the southern alignment and terminus, we undertook a very extensive planning program and opened an office in Tucson and had a very detailed planning process in the early eighties, between like 1980 through '83 or '84. That decision was long debated and took a lot of effort. We had Frank Desanza [phonetic] working out of the Tucson office for two, two and a half, years to try and facilitate that resolution of that debate.

Working on the Tucson Aqueduct during the Carter Administration

Planning the southern alignment and terminus of the Tucson Aqueduct

Storey: Would the original authorization cover extending the aqueduct like that?

Morton: Probably not. As it worked out, what we were directed to do was to transfer the authority that was in Charleston to the Tucson Aqueduct and then use the additional funds or the funds that would have been used to construct Charleston Dam to extend and enlarge the aqueduct. While we did not seek authority for that change from the authorization committees, we did notify the Speaker of the House and President of the Senate, and we notified the appropriation committees of our decision to modify and extend the terminus of the aqueduct.

We relied pretty heavily on a Solicitor's opinion that said while you had testified in the sixties during the authorization hearings, while you testified that the terminus would appear to be at the Marana area, the Secretary has broad discretionary authority to implement the proposals, and we think that if you notify Congress of the Secretary's intent to exercise his discretionary authority, that would suffice. That's the process we went through, and nobody's questioned that either in Congress or in the public. I mean, the public has not brought litigation to say that the Secretary has overstepped his authority, and Congress has not taken adverse action against that decision. So it's built now. It's kind of late to say the Secretary lacked the authority.

Storey: One of the things I'm particularly interested in is the way different parts of the organization relate to one another. So, for instance, in this decision to go ahead and extend from Marana south, was it the project office that decided to do that? Was it the Denver office? Was it the Washington office?

Transfer of authority for construction of Charleston Dam to the Tucson Aqueduct

The Secretary of the Interior notified Congress of his intent to transfer the authority for Charleston Dam into the Tucson Aqueduct

Who made the decision to extend the Tucson Aqueduct south?

Was it the Secretary? Was it one of those recommending to the Secretary? How does that work?

Morton: Well, in retrospect, what we had attempted to do was to gain consensus in the Tucson area as to what the alignment and terminus should be for the Tucson Aqueduct. A public committee was formed by the Mayor of the City of--

How Reclamation sought consensus for the location and terminus of the Tucson Aqueduct

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BEGINNING OF SIDE 2, TAPE 2. JUNE 20, 1996.

Storey: The Mayor of Tucson created a public committee.

Morton: Well, it was a joint effort. The Mayor for the City of Tucson and the public interest organization in the Tucson area that's known as the Southern Arizona Water Resources Association established a committee that was known as the CATS Group. CATS, Committee on Alignment and Terminal Storage. So that committee became kind of the sounding board for our planning activities.

Creation of the Committee on Alignment and Terminal Storage Group

We went through a rather extensive planning process to evaluate all suggested alternatives for alignment east of the Tucson Mountains, west of the Tucson Mountains. If it was east of the Tucson Mountains, should it be between the Tucson Mountains and the Santa Cruz River, or should it be to the east bank of the Santa Cruz River? So there were alternatives, at least two alternatives, down the east side of the Tucson Mountains. There were a couple of alternative alignments down the west side of the Tucson Mountains. One plan involved terminating the aqueduct at Marana. Another plan delivered water all the way south to the town of

Potential alternative alignments for the Tucson Aqueduct

Green Valley, which is forty miles south of Tucson, I guess.

So we went through a rather extensive planning process, developed cost estimates, developed environmental impacts, developed economic analyses relative to cost of water delivered to the Tucson Water Treatment Plant, cost of water delivered to underground storage, cost of water to recover that supply from the underground if it had been recharged, annual costs associated with operating the water treatment plant.

Even though that was not our decision--our decision was where are we going to build the canal or pipeline and where is it going to terminate--the city had to make a decision on, "Do I use conventional water treatment?" In terms of conventional water treatment, there's two schools of thought there, too. What do I use as a purification medium? Do I use ozonation? Do I use chlorination? What type of purification process do I go through?

Well, all of those types of decisions, whether they were decisions within Reclamation or decisions within the City of Tucson or decisions within Tucson's subcontractors. There are individual water companies in the Tucson area that had an allocation of water who were going to have to take their potable, who were going to have to obtain their potable water from the City of Tucson.

All of those entities were involved in a very comprehensive study, and the sounding board was this CATS committee. They would sponsor monthly hearings, if you will. We'd go down there every month with a contingent of people from the environmental office prepared to answer questions. Fifty or sixty people would show up. We'd put charts and photographs and

Tucson water treatment alternatives

Building consensus on the Tucson Aqueduct

maps on the walls, and everybody'd come look at the maps. We had kind of an open house. We'd talk to individuals and spend maybe two hours in an open house setting. Then there would be a formal opportunity to come, and people would take a transcript, and people would express their concerns, express their support. So there was just a lot of public involvement, a lot of consensus building.

Finally, it evolved that, through the lobbying efforts, through the collective wisdom that, in fact, we felt like it was based on what we understood the water to be used for and where it was to be used, and the fact that by that time the Southern Arizona Water Rights Settlement Act was about to be implemented. It had passed in '82, so this would have been right about that time. The decision was, yeah, we really needed to extent the canal because we had to serve water to the San Xavier district of the Tohono O'odham Nation.

In terms of sizing, we had to provide for water that was allocated farther south. In other words, CAP water had been allocated by the state as far south as Nogales. There were a number of contractors up the Santa Cruz basin south of Tucson, Farmers Investment Cooperative, which was south of the San Xavier Indian Reservation. Several of the mines south of the San Xavier Indian Reservation, two contractors at Green Valley, the Town of Rio Rico, the Town of Tubac, the City of Nogales, all received allocations of water. So it made sense to extend the Tucson Aqueduct to serve those uses to the south of Tucson.

Then the issue boiled down to, the real contentious issue boiled down to, you go east of the Tucson Mountains or you go west of the Tucson Mountains. If you went to the east of the

Southern Arizona Water Rights Settlement Act of 1982 and the Tohono O'odham

Issues important to sizing the Tucson Aqueduct

Tucson Mountains, the preferred method of treatment was groundwater recharge and recovery in the Santa Cruz River channel. If you went west of the Tucson Mountains, the preferred alternative involved conventional water treatment by the City of Tucson. I won't say we voted on it, but certainly the attempt to achieve public consensus seemed to direct us toward the west side alignment. Tucson was a definite supporter and, since they were the majority in terms of the water delivery and they intended to take their water delivery on the west side at a water treatment plant, a conventional water treatment plant, that became the preferred alternative in our environmental impact statement.

I think that in terms of the decisionmaking process to proceed with an environmental statement, the Project Manager was responsible for making a recommendation to the Regional Director. The Regional Director was responsible to concur on that recommendation. That allowed us to proceed with the environmental impact statement process.

My recollection is because of the sensitivity of that decision, it went all the way to the Department for a record of decision. So the Secretary was actually the responsible Federal party for making the decision. Because of that, since it was moved outside of Reclamation and moved up into the Department, then the Office of Environmental Policy Review got involved. I won't say their procedures are more stringent than Reclamation's procedures, but they are a little bit different. So we had to adhere to their procedures and the type of documentation they wanted to see in the EIS. So it was expanded somewhat to comply with their different procedures.

Who selected the alternative on the Tucson Aqueduct

The decision regarding location of the Tucson Aqueduct went clear to the Secretary of the Interior

Storey: This would have been when?

Morton: I think that one was probably '83 or early '84, late '83 it seems to me.

Storey: And when did the consensus building begin?

Morton: Oh, I think we had Frank Desanza [phonetic] down there working on a consensus in '81. About a two-year process of--it seems like every month we ran an open house and a workshop. Got a lot of public input. Still got sued! (laughter) Finalized the statement, made the decision, and then the east side proponents of groundwater recharge and recovery came forward and sued us anyhow. But sued us on environmental grounds, inadequate environmental impact statement. But the court ruled in our favor, both in the initial suit and then on appeal. So we did a good job.

Storey: Now, which side of the mountains were the tortoise on? The desert tortoise.

Morton: Well, the desert tortoise were farther north. There were in what is known as Phase A of the Tucson Aqueduct.

Storey: Oh, okay. That was a different issue then.

Morton: That was an entirely different issue, yeah. The desert tortoise populations that we were having to deal with were in the Picacho Mountains, which is sixty miles north of Tucson or so.

Storey: Before I forget to ask you, were you ever asked to participate in Reclamation's or the Departmental Management Training Program [Departmental Manager Development Program]?

*Morton and the
Departmental Manager
Development Program*

Morton: Well, it was proposed to me by the Project Manager and the Assistant Project Manager on a

couple of occasions. Two occasions, to the best of my recollection. And on both occasions I chose not to apply.

Storey: When was that?

Morton: Oh, I think the first time was shortly after I assumed the position of the Environmental Officer. Probably in '77 or early '78 was the first time. And the second time was probably '81 or '82. '81, I think.

Storey: Why did you choose not to, if I may be so snoopy?

Morton: Sure. You can be that snoopy. It was just primarily a personal situation. In '78 my wife was responsible for the care of her grandmother, her only living relative, and she was not doing terribly well and it would have been a difficult process. The Department program required you to be back in Washington for about nine months. At that time, I had just spent three or four very hectic months back in Washington. I knew how the Department operated. I really didn't feel it was going to be all that much advantage to me to do that. So when it was suggested to me that I apply--I think it was probably for the 1978 DMDP program -- I declined to apply.

By '81 or so I think I was so embroiled in-- at that time we were deeply involved in both the Tucson planning and environmental process and the alternative to Orme Dam--that I elected just to stay where I was. I probably could have benefitted. The cast of characters had changed in the Department. The administration had changed. The Reagan Administration was now in its heyday. I am certain that had I elected to do that, to apply for the program and was selected, that my

experience of four years previous or five years previous would have waned, and I could have benefitted quite a bit from that exposure. But I liked what I was doing. We had some very important work that we were engaged in, and I chose not to apply at that time. I was still the Environmental Officer then.

Then roughly a year after that, the Regional Director came to me and suggested I take a directed reassignment at his behest. So that worked out, too. That was a little change. So, in fact, if I'd gone to DMDP and come off of that program, I'd probably been doing the same thing that I ended up doing. I think that at that time the Project Manager had changed, and I think that he'd have had me working on that program anyhow.

Storey: Well, I think we've almost used up our time for today. Before we get into what you did as the Chief of the Environmental Branch, maybe we better start that tomorrow.

Morton: Okay.

Storey: Once again, are you willing for the information on these tapes and the resulting transcripts to be used by researchers?

Morton: Certainly, yes.

Storey: Good. Thank you.

END SIDE 2, TAPE 2. JUNE 20, 1996.

BEGIN SIDE 1, TAPE 1. JUNE 21, 1996.

Storey: [This is Brit Allan Storey,] Senior Historian of the Bureau of Reclamation, interviewing Larry Morton, Assistant Area Manager of the Phoenix

area office, on June 21, 1996, at about ten o'clock in the morning, in his offices in Phoenix, Arizona. This is tape one.

[Before I turned on the tape recorder] you were just telling me about an accident while people were looking at Bridge and Marble Canyon.

Morton: As a result of the congressional hearings in 1965 and '66, one of the things that representatives from the Phoenix Development Office at that time participated in was collecting additional geologic data and hydrologic data of the Bridge Canyon site. The easiest access was to take a boat upstream from Lake Mead, a jet boat.

In this instance, one of our geologists--as a matter of fact, our head geologist--was on his way up to the Bridge Canyon site. He was in the bow of the boat, and the boat glanced off a rock, and as it hit the rock, it just happened to hit right where his foot was, up against the side wall of the boat, and it dented the side wall of the boat. It was an aluminum jet boat. When it impacted, when the boat impacted the rock, it just shattered his ankle. He was laid up for about six months and had a couple of reconstructive surgeries to repair the damage from that trip.

Head geologist is injured in boat accident while working on Bridge Canyon Dam

Storey: Were those kinds of injuries common as we got into CAP?

Morton: Actually, I think CAP's been relatively safe, as compared to other major public works and other major construction programs. We've had three deaths, three contractor deaths on the project over the twenty-year construction period, and we've had one Bureau person who died, but not due to accident, but just a heart attack in the field and we were unable to get him medical help soon enough

CAP safety record during construction

to sustain his life, but he died of a heart attack in the field.

Storey: It sounds like a pretty good record, really.

Morton: Well, when you consider we're talking \$3 billion worth of expenditures and 340 lineal miles of construction activity and a twenty-year time period, it's a fairly safe job.

Storey: I imagine there were some auto accidents.

Morton: Oh, yes, we've had serious auto accidents. We've had people fall off of mountains, had a fellow, a surveyor in the early days of the project, they were doing plane table topography and they were set up on about a 30-foot cliff to get a good overall view of the terrain. He backed up to admire his work and stepped right off the cliff. (laughter)

Storey: That sounds like something I would do.

Morton: Shattered both ankles, and he was laid up for about six months.

Storey: But it didn't kill him?

Morton: But it didn't kill him, no.

Storey: And I think Vern Powell told me we had a snake bite on one of the survey crews.

Morton: Oh, yes, we've had snake bites, not only survey crews, but inspectors, geologists, they've been exposed to snake bites.

Storey: What about scorpions?

Morton: I suspect that we've had scorpion bites, as well. Stings, I guess, is the proper term. I'm not even sure that those even get reported in our safety records unless there's some need for medical treatment. They may not even get reported if they're not serious.

Storey: Well, yesterday we were talking about your early period as branch chief or ecological--what was it? The environmental branch.

Morton: The environmental office, branch, division, whatever the proper nomenclature was at the time.

Storey: Was that a promotion for you?

Morton: Yes. That was a promotion from a GS-12 to a 13.

***Morton gains a promotion
as head of the
environmental office***

Storey: Do you remember what else you were working on besides the Tucson aqueduct?

Morton: Well, as time went on, of course, in the late seventies, after the Water Projects Review and the deletion of Orme Dam, late in 1977, early 1978, we got approval from the Department to initiate replanning studies for an alternative to Orme Dam. By the summer, late spring I guess it was, probably May of '78, we had put together a team and a proposal, request for proposals, and I served on that evaluation team.

***Replanning studies for
Orme Dam***

It was a rather extensive evaluation. We concluded we didn't want to restaff the Phoenix Area Office, the Arizona Projects Office I guess it was called at that time, concluded that we didn't want to restaff a complete planning staff to evaluate all the alternatives to Orme Dam. There were certain public concerns about--that the public would not trust a straight 100 percent

***Reclamation decides to
contract for environmental
studies for alternatives to
Orme Dam***

Reclamation evaluation, but we were precluded from a turnkey operation. The solicitor concluded that, under Federal law, planning for Federal projects was an inherently Federal responsibility and could not be turned over to a third party, although the state of Arizona had expressed some interest in possibly doing the planning. So we concluded that, perhaps to improve our viability with the public and the state, we should employ a consultant to spearhead the planning effort. It would save us the costs of restaffing the organization, prove our perspective within the local community, and hopefully give us a good product.

One of the major activities I undertook at that time was to participate in the selection process for a consultant to examine the broad spectrum of alternatives that might be considered reasonable alternatives to Orme Dam. We had approximately ten representatives on that technical evaluation committee. We had three representatives from the Corps of Engineers. One aspect of Orme Dam was flood control for the greater Phoenix metropolitan area, so we utilized the Corps expertise to participate in that. We had a representative from the Fish and Wildlife Service. We had a representative from the Bureau of Indian Affairs. We had two representatives from our Denver office, and we had one representative from our regional office in Boulder City, and I think there were three of us, yeah, three of us, from the Phoenix [Project] Office. I'm not sure if that adds to ten, but that's about how many people we had involved in it.

I remember the proposals came in, like I said, in May. The initial proposals came in, and the team met in Casa Grande. We decided, if we were going to do a good job of evaluating these proposals, we needed to get away from our phones

*Contracting process to
select and environmental
contractor*

and isolate ourselves. So we took a whole week and met at Francisco Grande, just west of Casa Grande, Arizona.

I remember the Contracting Officer was a fellow from Boulder City, from our regional office in Boulder City, and he drove down from Boulder City on Sunday, with all the proposals, in a van. The proposals were quite voluminous. I think there were about ten in total. Ten different consultants had put forward proposals. So he had about ten or eleven boxes of paper, standard Xerox type reams of paper, and we sat out on the parking lot there at Francisco Grande and distributed them, in about 95 degree temperature, out of the back of his van. Everybody got a cardboard box and everybody got one copy of each of the ten proposals, and we went to our rooms and spent about three days doing nothing but reading proposals and making notes.

I don't even think we reduced our evaluation to quantitative scores on that first week's effort, just trying to get a handle on what the various consultants were proposing in the way of conducting the study. At that time, we hadn't even looked at the cost estimates. This was all just narrative material on what they could provide and what expertise they had on their respective staffs that they'd assembled and how they thought the study should go and what management controls would be employed in the study.

It was a very difficult task just trying to figure out what it was we wanted to do and what we wanted them to do. We spent the rest of the summer, after we'd narrowed the scope and defined three firms to give us best and final offers. Then we had face-to-face negotiations, and after the face-to-face negotiations we finally had the opportunity to look at their cost proposals.

The bottom line was that the firm of Dames and Moore was selected as our consultant, and they undertook about a--it was almost a five-year study before we concluded with the final reports, final environmental statement, Record of Decision. It took just about five years from actual award of the contract until we had closed it out.

Dames and Moore selected to contract for five-year environmental study

Storey: Can we talk about what you were looking for in the contracting process or is that off limits?

Morton: No. I think it's, like most contracting for professional services, it's a case of--I don't recall right now exactly the weights that were given to the various components, but what we were looking at was management expertise in managing large-scale studies, technical expertise in the areas to which the studies were focusing on. Of course, we were looking at several different areas--environmental capability, engineering capability. In other words, the Bureau of Reclamation was not even directly involved in the preliminary design and preparation of cost estimate. The consultant was to furnish that expertise, as well.

We principally relied on them for conceptual designs and cost estimates for the alternatives to be explored. We relied on them for environmental evaluations, social evaluations, financial evaluations. What else? I think those were the three principal, or four areas of evaluation is design and costs, environment, social, and--I said another one. What did I say? Environmental, social, economic, the economics costs and benefits associated with each plan.

Each firm had subcontractors that they were proposing. An example was a case of cultural resources, for example. One firm had the Arizona State Museum in Tucson. Another firm had Arizona State University. Another firm had

some outfit from California. They scored relatively low because they were out of state, I think. I think the primary, in terms of weighting the proposals, the primary thrust was demonstrated capability in managing large-scale studies like this. It probably had like a 40 percent weight as compared to the other aspects of the proposals.

Storey: So they created a proposal for what they were going to do, which ended up covering about a five-year period. Was it scheduled over a five-year period?

Morton: I think initially it was scheduled over about a three-year period, but by the time we added some additional work, as we went through the process it became obvious that all or nearly all of the alternatives that were under consideration that passed the reasonableness test could also be used for a new program that was authorized in '78, and that was the Reclamation Dam Safety Act, and because most of the plans, if not all of the plans, could provide a margin of safety for the Salt River Project dams, about two years into the process we integrated the safety of dams analysis into what at that time was called the Central Arizona Water Control Study. So that added both time and dollars to the original contract.

Storey: So the Central Arizona Water Control Study was a different thing.

Morton: Well, the Central Arizona Water Control Study is a long title for the search for an alternative to Orme Dam, and before it was done, it also integrated the safety of dams planning process for the six storage dams of the Salt River Project.

Central Arizona Water Control Study was conducted to determine alternatives to Orme Dam

Storey: Let's keep on with Dames and Moore and the study for the alternatives before we go back to that one. You said, I think, you got down to about three folks. Was this a tight competition or was it fairly obvious? Were there negotiations going on? What was going on here?

Morton: Well, of course, we started by reading each of the proposals, and, like I said, each proposal was probably a 2- or 2 1/2-inch, 3-inch document, and we had ten of those. We developed weighting factors and evaluation factors for each major component of the ten proposals, and then we as a group, the ten of us, sat down and debated the merits of our relative scores based on those narrative proposals.

My recollection is it was not a real difficult process to narrow the scope based on the technical merits of the proposals. I think we were able to say that there were three that were much higher than the other seven. So I think we narrowed the scope rather quickly without face-to-face negotiations, but, when we narrowed that scope to the three best qualified, we also requested clarifying input from each of those three. About thirty days after our initial get-together--actually, I think it probably took us about two weeks to finally narrow the scope. It just took us a week to read the things and individually judge the relative merits of each, and then it took us another week as a group to debate those merits and reach some kind of consensus on the best offers.

Storey: This was all down at Casa Grande?

Morton: All down at Casa Grande, yeah. I remember we used to break up about four o'clock in the afternoon. It was cooling down a little bit by that time. It was only 95 or so. George Wallen had

come down from Denver. He was serving on the committee. We'd go out and play golf about from four to six, four to seven, have dinner, and then go back and read for a couple more hours. That's how we passed the time.

Francisco Grande was, Horace Stoneham had originally owned it. He was also the owner of the San Francisco Giants, and it had been set up as a minor league training camp. As a minor league training camp, they needed some activity for young males to work at when they weren't playing baseball, so they built this golf course. It was probably an 8,000-yard long golf course. Every hole was 500 or 550 yards, it seemed like. It was a long way around that golf course.

Storey: Gotta build up the legs.

Morton: I remember that one, long way around. There weren't many par three's, if any, that I can recall.

My recollection is, we worked for a week, we took a break, we came back, we worked for another week, and when we were done with that deliberation, we had established a narrowed list of three best qualified offerors. The Contracting Officer then collected all of the questions and assimilated those questions and then resubmitted them to the three best qualifieds, and I think it was maybe thirty or so days later we got together again to review what they had resubmitted to us.

Then we developed a negotiating strategy for each of the proposers, each of the three. Let me think. We met at Casa Grande two times. Then when we received the clarifying information, I think we met in Phoenix that time. And then the next time, we met at the Mint Hotel in Las Vegas for the first face-to-face negotiations, and we took a day for each proposer. We worked on Saturday, so we had like, we met with a

*Face-to-face negotiations
for selection of an
environmental contractor*

proposer for one day and got all of their responses. They brought most of their major team members, their principal investigators in. We got to know them. We had a list of literally dozens of questions to ask them. Each field of expertise within the team, within the evaluation team, posed his or her questions to the group, and we all took notes and tried to evaluate the way the responses were coming back.

It's kind of interesting. Some of the teams had a spokesperson, and that was about the only person that talked. We'd ask a question, and say it was a biological question. He'd confer with the principal investigator for biological resources, and then they'd answer the question, obviously some real centralized control in the management of that team. Some of the other groups just had enough trust or reliance on the individuals within the team or had a previous working relationship with the team. The spokesperson for the team--in this case, a vice president of the firm, usually. It seemed like they were all vice presidents--would turn to the principal investigator for that area of expertise and direct he or she to answer the question.

So we got a very broad perspective on how the teams would function, not only by their answers, but also by the way they operated as a team and the way the body language and so on. It's quite an art, I guess, to go through one of these extensive procurements, because there's a lot of different ways of figuring out what kind of product you're going to get and what kind of organization you're actually dealing with. It was a very extensive learning experience for all of us.

Anyhow, I think we spent about six days at the Mint in Las Vegas. We had interviews on Monday, Wednesday, and Friday, and then on the alternate days, Tuesday, Thursday, and Saturday,

we critiqued amongst ourselves what we had heard the preceding day from the offeror, from the firm that was making the offer.

We narrowed our scope then, I think, to two, and then we got the cost proposals. The cost proposals, it seems to me, were about double what we were expecting. We were thinking in the \$3 to \$5 million range, and they came in at \$8 to \$10 million.

Storey: So what you've been talking about so far is strictly review of the technical presentation, without having any cost figures.

Morton: Without having any cost figures. As a result of our initial look and the resulting clarification questions, the Contracting Officer then offered each firm the opportunity to revise their cost proposals, because we were imparting our views on what needed to be done, as well as getting feedback from them on what they thought should be done, so it was a two-way dialogue. So each firm was allowed the opportunity to revise not only its technical proposal, but also its cost proposal.

So we got a consolidated technical cost proposal back after that first series of face-to-face negotiations, and as a result of that process, then, I believe we went to two firms for best and finals. We met in Denver, and it had to be in November because it snowed. I remember there was about two inches of snow on the ground. [Tape interruption.]

We went to Denver and we--I can't even remember the name, Quality Inn or something like that out on the west side of Denver. We spent another couple of days with each firm, like a half a day, I think, with each firm and perhaps another day or so in deliberation, three or four days total

Potential contractors are allowed to revise contract costs

Dames and Moore is selected for the environmental contract

time, evaluating their best and final offers. It was at that time we made the selection of Dames and Moore.

Storey: Now what was it that they were supposed to be doing? I'm hearing a lot of environmental work connected with this.

Morton: A lot of environmental work. In those areas involving Indian reservations or involving community development and so on, there was social types of work. The key was, there was a large-scale public involvement effort, coordination with a committee that had been set up by the governor, workshops, presentations to outside public entities, including Sierra Club, Audubon Society, the Fort McDowell Indian tribe, the Salt River Indian community, general management of the study, formulation of alternatives, conceptual design, cost estimates for those alternatives, environmental impact analysis for each alternative.

The initial scope involved something on the order of twenty or thirty different alternatives. Just about anything anybody suggested as an alternative to Orme Dam, including such things as a series of small dams in the upper watershed on the Salt and Verde system to conserve water, at some distance from the Orme site. In other words, keep the water in the upper watershed and use those small impoundments for recreation and wildlife purposes.

Storey: So the intent of the study was not only to look at alternative locations, but basically to come up with an environmental statement?

What Dames and Moore needed to do to complete the environmental studies

Some twenty to thirty alternatives to Orme Dam were looked at

Morton: Oh, yeah. The bottom line was that we expected to create an entire--the deliverable was a planning report and environmental impact statement, and what we ended up with was a planning report with all the supporting appendices--the plan formulation appendix, the designs and estimates appendix, the biological appendix, the recreation appendix, the economic appendix, the financial appendix. We ended up with a shelf of, I don't know, three- four feet of books.

"the deliverable was a planning report and environmental impact statement [and] all the supporting appendices"

END OF SIDE 1, TAPE 1. JUNE 21, 1996.

BEGINNING OF SIDE 2, TAPE 1. JUNE 21, 1996.

Storey: You were saying Reclamation ended up with three or four feet of books.

Morton: Three or four feet of books, different volumes associated with the planning report, and then, of course, that was distilled into an environmental impact statement. That, in turn, was submitted for public review and ended up going through the normal public commenting process.

Storey: I guess Dames and Moore had something to commend it over the other finalists.

Morton: Well, we thought so at the time. I think that was our first experience at a large-scale planning operation by a consultant. Dames and Moore's experience had included a number of private developments for cities and other municipal entities. They obviously had project management types of experience. They had written a number of environmental impact statements around the world for all practical purposes. They had expertise or had hired expertise in all the requisite environmental and social, financial, economic areas. They didn't rely solely on their own firm,

but they brought a number of consultants in as subcontractors.

I would have to say, in retrospect, I think we could probably have done the job a little cheaper. That was one of the things I think that surprised us when we looked at the cost proposals was the amount of overhead that went to the parent company, and then, of course, the profit margin was also in the cost proposal. Normally, when we would do government cost estimates, of course we did not use as high an overhead rate. The overhead burden on a national corporation is fairly high. Even though they may not do, if any, the home office does little, if any, of the actual work, their overhead burden and profit certainly adds to the cost. I think that was probably the biggest surprise to us who had worked in the budgetary side of the Federal government, whether it was the Corps or BIA or Reclamation, was how much overhead was actually being charged back from the base project. It was quite an eye-opener to us.

But I think that they did help us with our credibility. The advisory group that the governor had set up achieved some form of consensus among themselves or what an alternative to Orme should look like. They had a diverse representation on that committee. I won't say that it represented the entire community, but it certainly represented most of the diverse interests in the community. There were representatives from both the Sierra Club and the Audubon Society, and with the exception of one dissenting vote, I think twenty-one of the twenty-two directly involved parties on the governor's committee agreed with the selection of Plan 6 as the alternative.

"I think we could probably have done the job a little cheaper"

Overhead charged by bidders was quite high

Dames and Moore helped Reclamation with credibility during the study of Orme Dam alternatives

Arizona governor's advisory group arrived at consensus except for one member

Plan 6 was selected as the alternative to Orme Dam

I should go back and say we started off with twenty or thirty, innumerable alternatives. The scope was narrowed to nine over time, and the final decision was based on those nine alternatives, and that was what was documented in the environmental statement as the range of reasonable alternatives considered in the environmental statement.

The environmental study was limited to nine alternatives fairly quickly

Storey: Was the contract for a draft environmental statement or for a draft and a final?

Morton: As it worked out, I think as we evolved there were a number of modifications to the contract. My recollection is that the original contract was for a draft EIS, and as it worked out, it was modified to include the finalization of the EIS, primarily because even though any number of opportunities were offered for public input, it still engendered a lot of input as a result of the draft.

The draft itself, I think we had three public hearings, and the draft was out for public review for about ninety days, which is pretty long normally for an environmental impact statement, but it was available for public review and comment for at least ninety days. So the numbers of comments were fairly extensive, and Reclamation really didn't have the staff at that time to deal with all the comments, so the contract was modified. I can't remember if it was modified before we had all the comments back or at the time we got them all back, but the contract was modified. They did produce the final environmental impact statement for us.

BEGIN SIDE 1, TAPE 1. JULY 15, 1996.

Storey: [This is Brit Allan Storey, Senior] Historian of the Bureau of Reclamation, interviewing Larry Morton, Assistant Area Manager of the Phoenix Area Office, in his offices in Phoenix, Arizona, on July 15, 1996, at about noon. This is tape one.

Last time we were talking I think we had gotten to the point where you were working on distribution systems for non-Indians, '82 to '85. Some of the kinds of questions that had come up in my mind were things like, when the districts did the planning, and the design, and the environmental reviews, the whole schmear for these distribution systems, what were the kinds of issues that came up for us, because we're a Federal agency, and we have responsibilities that are different, and sometimes at odds with what the water users are interested in? What kinds of things were going on there?

What kinds of issues arose as Reclamation worked with the irrigation districts to develop the non-Indian delivery systems?

Morton: Well, there were a number of issues, engineering, environmental, realty. The original concept that was in the minds of many of the districts was the loan process associated with Reclamation -- the Small Reclamation Project Act loan, or the Distribution System Loan Act. Many of the districts here in central Arizona had prior experience with one of those loan programs that was sponsored by Reclamation, and most of their engineering consultants were familiar with those programs.

Let's just examine the engineering side of the thing. The standards for a Federal distribution system that would be owned by Reclamation are more stringent than what has been more prevalent in the loan program. The loan programs, for design criteria and design standards, tended to be

Local engineering practices on the irrigation districts sometimes were problems

a function of the area in which the facility was being constructed. Local practices tended to be the norm in the loan program, because in the loan program, the facilities are owned by the district or the water users, they're not owned by the United States. It was felt that we had to adhere to a higher standard if the facilities were going to be in the name of the United States, as was the case with the Central Arizona Project facilities -- the delivery systems.

So there was a lot of give and take on what kind of criteria we would impose on the districts, because more stringent criteria would generally mean a higher cost. It was the difference between, for example, two-inch canal lining versus three, or three-and-a-half, or four-inch canal lining. It was densities for compacted embankments. How strong did you need to make those embankments? What was the assumption with regard to cross drainage? Did you put in culverts that were designed for a twenty-five-year recurrence interval, or did you put in culverts that were designed for fifty- or 100-year recurrence interval? What was the design life of the facility? Many of the loan program criteria were geared to the term of the loan. If it was a twenty-five-year loan, and it was anticipated that the facilities would be paid off in twenty-five years, the design criteria generally looked at a service life of about twenty-five years. In other words, when the district paid off their loan, conceivably the facility, with less than good quality maintenance, would fall apart. Its service life would basically be complete.

On the other hand, Reclamation was looking at at least fifty-year, if not a hundred-year. In the case of the Central Arizona Project, the backbone facilities, our general design criteria is that the service life of the project should be a hundred years. Obviously, the repayment, the

There were traditional loan programs that were not used, but practices in those programs affected the way the irrigation districts approached the issues

The service life of the facilities presented a problem on distribution systems

financial life of the project is fifty years, and in the case of these irrigation distribution systems, we were looking at a maximum of forty years for the financial life of the project, or of the facility. So the design criteria would impose a more stringent life expectancy. So in turn you had to consider higher quality design standards.

This was not really agreed to -- was grudgingly agreed to, I guess I'd have to say, by the districts. On nearly every instance they would seek waivers: lining height, lining thickness, compaction criteria, reinforcement in areas subject to subsidence, overdesign in areas subject to subsidence, bridge structures. We required adherence to national standards for bridge crossings. The districts would try to get waivers and try to insist that the bridges would only be infrequently used and, in turn, should not be subject to national standards for secondary roads, although, in fact, they were secondary roads. I mean, many of the farm to market roads across those canals are secondary roads and are subjected to load bearing vehicles similar to what you'd see on a dedicated secondary road.

So before we would release any of the districts and their consultants to proceed to final design, we had to get complete agreement on what the criteria was that was going to go into those designs. We had a number of meetings with the consultants. The consultants, in turn, would object. The districts would object primarily from a financial perspective. The consultants, I don't know if they felt like we were imposing criteria on them that we would not propose on somebody else, or that they were being singled out, but oftentimes they felt that it was a personal affront that we were requiring substantially greater of them than any of their other clients had demanded of

The irrigations districts often sought waivers of design criteria on the distribution systems

How consultants to the irrigation districts sometimes caused problems in development of distribution systems

them in the past. Since we weren't their clients, but were their masters so to speak, they had to meet what we required or lose 80 percent of their funding, although the districts were the owners, the clients, of the A&Es. It often became a directive process where we'd say to a consultant, "Do it this way." Then they'd go to their client and say, "Do we really have to do it this way?" So it was a real give and take process.

From the environmental side of things, I think that we had generally concluded that most of the facilities to be constructed could be handled with environmental assessments, under the umbrella of the overall programmatic CAP environmental impact statement. To the best of my recollection, they all were handled with EAs. I think early on the EAs were prepared in-house. The proposals were provided to the Reclamation staff, and then the Reclamation staff evaluated the environmental impacts, and produced a checklist, and ultimately resulted in a finding of no significant impact.

As we got more and more of these and the workload kind of backlogged, the districts began providing in-kind services. They would go out and hire an environmental consultant with our approval, and the consultant would prepare the environmental impact assessment and, in turn, then it would be provided to Reclamation for review. Then we would adopt it as the vehicle for our finding of no significant impact, and we were the Federal official so, of course, we had to document the FONSI, but the assessments in the last two or three years of the program were all done by consultants on the payroll of the individual districts.

But the first two or three, if I recall correctly, the assessments were done in-house, because we had this concern that the impact

Distribution systems were generally handled with environmental assessments for the most part

Early environmental assessments were handled in-house by Reclamation

As the distribution system workload grew, irrigation districts hired consultants to develop environmental assessments which Reclamation then reviewed and adopted

Reclamation accustoms itself to others doing environmental work for the irrigation districts

analysis would not be properly done and, in turn, we would have to deny the applicant's EA and, in fact, duplicate the effort to produce the EA. So we kind of had to feel our way there for the first couple of undertakings. Once we got comfortable with the process and comfortable with the people we were working with, and the districts, in turn, employed reliable environmental consultants to actually do the analysis, we began to feel much more comfortable with that process and, in turn, delegated more and more of the day-to-day work to the districts for accomplishment.

There were a number of waivers on the engineering side that we sat down and negotiated out. Some of our practices here in the desert Southwest, on a national basis, would have been more stringent than was necessary. For example, seldom if ever do we find a need for a criteria that employs the freeze-thaw. We don't get cycles of freezing soil mass and thawing soil like you would in North Dakota, and Montana, and Wyoming. So we didn't need to have that stringent a criteria that considered what happens to concrete under alternate periods of freezing and thawing, because it doesn't happen here in the desert southwest. We were able to give waivers for things like that in the concrete design, for example.

I think we got a good product, generally. Probably the only area that we may have gone a little too far on was the area of slipform lining -- unreinforced slipform concrete pipe lining. The Salt River Project had, oh, about thirty years of experience in constructing pipe using a lining machine.

The engineering consultant who worked for the Queen Creek Irrigation District had done a lot of work for the Salt River Project, and was

Engineering waivers for the distribution systems that Reclamation negotiated out

Some normal construction criteria did not apply to CAP

Slipform concrete pipe lining and why we had problems with it on the Queen Creek Irrigation District distribution systems

very familiar with those kinds of construction techniques. However, we found later that some of the areas around Queen Creek were much sandier than the areas on the Salt River Project, where the consultant had his experience. We found that due to differential settlement in that sandy soil body, we had some pipe that cracked quite a little bit. We had to do quite a little bit of repair. I think we would have been better served if we had used conventional cast-in-place, or conventional prestressed concrete pipe, rather than the slipform pipe that we did use. I think that would be the one area that I could point to that the use of local practices didn't pan out, because the local practice, just by the variation in the soil wasn't transferrable over, probably, a ten- or fifteen-mile distance. What was done on the Salt River Project in the Chandler area wasn't directly applicable to the Queen Creek area, and it's only ten or fifteen miles between Chandler and Queen Creek, but a minor differential in the soil body caused a substantial amount of damage to the pipe, and the pipe couldn't stand.

Storey: What's slipform?

Morton: Slipform is where you use a balloon membrane. You bore -- what do you call it? You bore a tunnel, if you will, a small pipe diameter tunnel, and then between the outer body and -- the pipe itself is formed by the balloon, and then the wall of your boring is the outside formwork for your concrete. So essentially you're boring laterally through the soil and behind the bore you've got a balloon, a sausage-type balloon, that's of the inside diameter of the pipe. Then you pump concrete around that balloon, and the sides of the bore become the outside diameter of the pipe, and the balloon becomes the inside diameter of the

pipe. Then you evacuate the balloon, you let the air out of the balloon, and you pull the balloon out.

Storey: Pretty sturdy balloon, I guess.

Morton: Yeah, it's kind of a fabric. It's not like a kid's balloon.

Storey: What kind of diameter are we talking about?

Morton: Oh, these were eighteen, twenty-four -- I think we had one run of about thirty-six-inch diameter pipe. These are laterals, generally. The problem is, you can't get back through them to repair them. At thirty-six-inch, you've got a manhole and a man can go down in there and actually plaster up the inside of the pipe. At eighteen inches you can put a camera down there and have a little electric mole move through the pipe. You can determine where the bad spots are, and then in turn you can excavate down and take that section out and replace it. But it can be a pretty expensive process to: one, find where your leaks are, and then, two, to repair them.

Storey: Did we use this technique successfully at other locations, or was this the place we tried it?

Morton: This was the only applicant, the only district that came in and proposed this kind of product to construct their distribution system. Like I said, it was based on some thirty years of history on Salt River Project. It had been approved for use on the Salt River Project on many, many occasions. But had we done a little more testing and not jumped into full-scale production, I think we would have found that, because of the soil in Queen Creek, the

product would not have been as good as we would have liked it to be.

Storey: Okay, now Reclamation owned these pipelines.

Morton: Yes.

Storey: So let's talk about when the repairs take place. Were we doing that? Was the water user doing that? Then the second part of the question is, what happens to the repayment costs?

Morton: Well, obviously the repayment costs go up. The bottom line is that we were the contracting officer. We took a spec[ification], whether it was the original construction spec or the repair spec, and we put that out for bids -- Reclamation did. We accepted the spec that was prepared by the consultant for the district as a contribution of the district, and then we would bid the job, we would award the contract, and we would pay the contractor for the work, so that roughly 80 percent of the costs of the facility were being paid by the government. The other 20 percent was being paid by the district. Generally, their 20 percent was being paid through their payments to the engineering firm that was involved in the design and/or the construction management.

So in the case of the pipe in Queen Creek, in that instance, there was either one of two things. Either the original contractor who constructed it under his warranty clauses, had to go back and make the repairs as part of his original contract, or if it was determined that the contractor did everything in accordance with the specification and we still had some bad pipe that needed to be repaired, then we did it one of two ways. There were some pipes that were large enough diameter that the district work forces

Repayment of costs for repair of slipform pipe in distribution systems

Distribution systems were paid for 80% by the Federal Government and 20% up-front by the irrigation districts

How it was determined who was responsible for repair costs on slipform concrete pipe

could actually go in and do the repair themselves, force account repairs. They did that with their own money. If, for example, you had fifty feet of bad thirty-six-inch pipe, and you had to go in and epoxy that pipe in order to render it adequate by our definition, oftentimes they would put a man down there with a ventilator, and pressure epoxied the inside of the pipe, so as to stabilize it, to render it adequate for our purposes. That was paid for by the district. They bought the supplies, the materials, and paid the worker.

But sometimes there were situations -- there were at least one and maybe two situations where we actually solicited a repair contract, or we said, "Hey, this is eighteen inches, there's 250 feet of this eighteen-inch pipe. We've identified it's from station X to Y and from X-prime to Y-prime, and X-double to Y-double, so maybe we had 250 feet spread out over a mile and a half. So we would hire a contractor to actually go in there and repair it -- either cut it out or, if he could, to go in inside the pipe and repair it. I think we had at least two contracts like that. I think they were both in the \$100,00 to \$200,000 range. So then, in turn, the costs of that additional work was added to the district's repayment obligation -- the Queen Creek repayment obligation.

Storey: I can see if I were a water user that I would argue somehow that it was the government's fault, and I shouldn't have to repay.

Morton: Well, but it was his spec, and he was the one that convinced us that this local practice was the one that should be employed. If he got a bad product, we're not going to take title to it unless it meets our standards. That was part of the bargain. So on one hand, he got a break, because if we'd

Risks accepted by irrigation districts when they requested a waiver of engineering standards

imposed and not waived our standards, if we'd imposed our standards, and required, for example, prestressed concrete pipe, he would have had a more expensive product but it would have met our standards in the first place. He proposed an alternative, he argued that it was justified on the basis of local practice, he brought in demonstration that it was good quality pipe and had been serviceable for some thirty years on the Salt River Project. We accepted that. We gave them a waiver. He saved some money on that end, but then we had to go back and repair it. So maybe his savings all evaporated, but in all likelihood, he didn't pay anything more than what he would have had he built it to our standards -- to Reclamation standards -- in the first place.

Storey: Am I hearing that this issue showed up very quickly -- right away? Or was it after water had been put through it, or what?

Morton: Well, in one instance, at least, it showed up on the initial acceptance inspection. We found that there "were no water." It was a relatively low head, but the contractor had to show that the pipe had minimal seepage. I'm trying to remember the period. Was it forty-eight or ninety-six? I don't remember if it was forty-eight hours or ninety-six hours, but he had to put it under like a ten-foot head for forty-eight or ninety-six hours, and demonstrate that there was not appreciable water lost during that period of time. So you build a stand pipe and he'd bulkhead both ends of the pipe and he'd fill the pipe up with water, and put ten foot of head on the standpipe, and we'd go out there and measure it, and find out that the water all disappeared. So obviously the pipe was defective someplace. At least in one instance, it couldn't even pass the hydrostatic acceptance test.

The test applied to the slip-form concrete pipe

In several other instances, the damage, or bad pipe, was discovered after a short period of operation. It had been in service for like six months. The district would go in and inspect it, or they'd notice that their water deliveries versus their inputs and outputs were not matching up. They were delivering 650 acre-feet to the head end of the pipe, and they were only getting 300 acre-feet. Along the run of the pipe they were only turning out 300 acre-feet. It was quite obvious from the records that there was something wrong in that reach or section of pipe. They would go back and look for the problem area, whether they used a little electronic robot camera to look for it or actually put somebody down through the pipe with a miner's lamp and walk or crawl through the pipe to observe what the problem was.

Storey: But at that point we would have accepted the pipe, right?

Morton: At that point we would have accepted the pipe, but we would have a latent defects clause in the contract with the original supplier of the pipe. The "latent defects [clause]" was that if shows up within two years -- there would be, obviously, a time period to demonstrate. Then we'd also have to know that no adverse conditions had happened, a truck didn't run into it, or some other activity hadn't occurred which would have rendered the warranty invalid. But generally, it was within the warranty period that we found it, and then we would go back on a contractor.

If it was an issue that, in fact, the contractor had built it to the specifications, and there was a defect in the specifications, then the original

*The latent defects clause
in distribution system
contracts*

contractor would not be held liable, but the district would have to go in and repair it.

Storey: Do you remember how that worked out? Were there a lot of warranty things? Were there few?

Morton: It's my recollection that most of them were handled through the warranty or latent defects clauses. Like I said, there were two repair contracts that were independently issued, and it's my recollection that one of those was due to a design problem. I think that the wall thickness of the pipe was understated, and the contractor had done it right. It was a defective spec or a defective design and, in turn, we went out and simply replaced that lateral.

In the case of the other one, I think that it would have been a warranty issue, but the original contractor had gone bankrupt, and the surety was more than willing to fight. The surety was not going to pay for it, and we concluded that it was a fifty-fifty proposition on whether we were going to get anything out of the surety, so we went ahead. The irrigation district basically said they would go for reconstruction rather than trying to get the insurance company to hire another contractor to repair that existing piece of pipe. So we went that way and issued another contract on it.

Storey: You mentioned right-of-way. What kinds of issues came up there because of this non-Federal involvement, if any?

Morton: Well, the original con --

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Morton: The original concept for right-of-way was that if the districts were going to be subjected to paying 20 percent, that one way to achieve that was for the districts to actually provide us the right-of-way as a donation. We had agreed that if any entity would donate the right-of-way, the fair market value of that donation would be credited as a contribution. It sounded real good on their applications, but when you got right down to it, there was not one farmer out there that was willing to donate a foot of his land unless he got paid for it, or unless everybody in the district paid equally.

Well, the problem was on some growers, on some farmers, you might need twenty acres from that farmer, and a budding landowner, because the water was being delivered in a smaller lateral, whether it was a surface lateral or a pipeline, the requirement for land was less, the requirement for pipeline would be less than for a surface ditch. So when you got all down to the bottom line, every farmer proportionately was impacted differently. If a guy had a hundred acres, and you needed one from him, that was a 1 percent impact on him. Another guy may have had 200 acres, and you needed four acres from him, and that would have been a 2 percent impact. It was that kind of situation. You'd never say [in] proportion to the benefits, here's what your costs are. No one could be treated equally as it worked out. So the bottom line is [that] we decided, well, we just need to go ahead and pay everybody.

Then the issue became one of, well, how do we evaluate payment? Well, under the Uniform Relocation and Real Property Act, we're

*Right-of-way issues for the
distribution systems*

required to offer not less than the fair market value. Normally we would go out -- Reclamation would go out and either with staff appraisers would appraise the land, or we would hire consulting appraisers and, in turn, their reports would be reviewed within Reclamation, and the senior reviewing appraiser within Reclamation would approve the appraisal for acquisition purposes.

The districts brought back a counter proposal that says, "Well, we'll go out and we'll hire our own appraiser. You can review it, you can make the payments for it" -- buy the land in other words -- "but we don't see as we're going to make up the 20 percent that we have to unless we invest some of our money in hiring these appraisers."

I think our reaction to that, initially, was, "Yeah, your appraisers are going to be out there highballing the appraisal so that you, in turn, will get more in payment from the United States than what the United States may feel the fair market value of these lands to be. So the appraisals will all come back higher, or at the high end, if you will, of the range of appraisals for similar situated land, because you're paying the salaries of the appraisers."

We negotiated that issue back and forth for quite some time, and finally concluded that if the appraisers were hired through full and open competition, and had a track record in central Arizona, they weren't some outfit from Texas or Southern California that was coming in, we would approve that deviation as a procedure to establish the fair market value for the land, but that we reserve the right to discard any appraisal that was found to not meet our standards.

So the districts went on, I think, one, two, three, four -- four of the Pinal County districts

*Some irrigation districts
hired their own appraisers*

went out and hired their own appraisal entities to actually conduct the appraisals, and the two areas that water would be delivered to first, on the Granite Reef Aqueduct, the Harquahala District, and the Tonopah District, which lie west of Phoenix, because water was beginning to get close. I mean, we were building pumping plants and the main aqueduct system was moving along pretty well, and Harquahala and Tonopah were wanting to get under way and get their distribution systems in-place. So Reclamation staff appraisers actually did Harquahala and Tonopah, but because we had more time, New Magma, Maricopa-Stanfield, Hohokam, Central Arizona, they went out and hired appraisal firms to do the appraisal. Matter of fact, in the instance, at least, of New Magma, Central Arizona, Maricopa-Stanfield, they had two different firms that worked together. They had an appraisal firm and an acquisitions or negotiating firm that actually did the negotiations.

Some districts used an appraisal firm and a negotiating/acquisitions firm

So that the concept here was that we would define the necessary take from an A&E's design. The architect, the engineering firm, would design the main canal or the lateral system associated with, for example, New Magma and, in turn, we would establish the necessary land requirements for that design. So we'd agree on that first.

Then we'd hand that take area to the appraisal firm, and the appraisal firm would go out and do their appraisal, and they'd come back with an appraisal report for each parcel along that length of canal or lateral. In turn, we'd review it again, and go through another process of review, we'd reach agreement on the appraisals, and then we'd give it back to the district, and the district would go give it to a negotiating firm, who would actually go out, contact each individual

landowner, make the offer, get the contract signed, and then submit them back to us. If everything was correct at that point in time, in other words, the take was all properly described, we had the right legal description, the right title reports, we had the approved appraisal, we had a contract that was not less than the approved appraisal, or in some instances, because the landowner was able to point out deficiency in appraisal, we may have gone over the appraisal, but it was all within the limits of what were delegated -- I think it's within 15 percent of the approved appraisal -- we would countersign the contract.

That was generally the process. A rather convoluted process that we'd handle all internally to one of our organizations. Our Realty Division here in this office, would normally have done all that. The whole process that I've just described to you would have been done in one unit in our office. But the way it worked out, it was done by three different entities, each with their individual profits and overheads, so I know darn well that we could have done a better and cheaper job, but the districts, for one reason or another, wanted to control the work and their cost. This was a way to do that. If they'd handed the job to us, there might be some visibility as to what we charge, but there wouldn't have been any controls on it from the district. I mean, the district would not have controlled it. It would have been done within Reclamation control rather than district control.

So, there's always this fear that Reclamation would drive the costs up. I would submit that just the opposite occurred, that in fact, because they were dealing with two, and three, and four different entities and they each had their lawyers, and they all had to negotiate their own separate agreements with the irrigation district, and the district's overhead cost were excessive, I think.

Irrigation districts feared that if Reclamation did the work costs would rise, actually the opposite was probably true

That whole process was more expensive than what it really had to be.

I think that was probably, for me, the biggest single failure of the operation, was that the districts ended up paying more than if they just turnkeyed the program to Reclamation and then paid us 20 percent on what our total costs were, but nobody wanted to do that. They all wanted to insure that they were in control of their 20 percent, and they just didn't want to pay a flat fee to a bunch of Federal bureaucrats.

Storey: What about quality control? I take it that meant their construction inspectors were out there rather than ours?

Morton: Well, as a matter of fact, we ended up having both of us out there. We had to certify the vouchers. In other words, we were the contracting officer, so the construction contractor would have to submit his vouchers to Reclamation for payment. While the district forces generally was the district consultant, the engineering consultant for the district, he would have people on staff who would actually be meeting Reclamation's requirements for quality control. So if the requirements for quality control said, "One compaction test per X yards of embankment material," or "One concrete cylinder break per X yards of concrete placed," they would perform those activities. They would physically have a representative of that engineering firm on site overseeing what the contractor was doing.

But we had to oversight the oversighter, because, in turn, the COTR, the construction engineer from Reclamation, had to certify to the contracting officer that, in fact, that stuff was actually put in the ground. So there's a little bit

*Construction inspection by
Reclamation AND the
irrigation districts*

*On the distribution
systems "we were
inspecting the inspector"*

different inspection relationship. We were inspecting the inspector so to speak, and the inspector was inspecting the contractor's work. It just is that quality control inspector was not a Federal employee, he was generally an employee of the engineering consultant or the district.

So our Reclamation field inspectors had a completely different mind-set when they worked on these programs, because no longer were they out there to insure that the contractor was constructing whatever was to be constructed according to the spec. They were out there to insure that this private entity was making sure the contractor was doing his job right. So the inspection reports looked a little bit different. We didn't have any Federal laboratory staff there actually doing the physical quality control checks that we would normally have done on a job. We became more like paperwork inspectors. Did the cylinder really break? Who watched him break the cylinder? Did they write the right number down when the cylinder broke? It wasn't a case of us doing the physical work, but more oversighting the paperwork.

I guess that's probably not unknown within the Federal oversight program. FAA, for example, overlooks the people who actually inspect the airplanes, and they make sure that all the quality control is being properly done, not that they actually do the quality control. They just make sure that the forms are properly filled out. It was a little different for our staff.

Storey: How did all of these things relate to one another? In other words, you were head of the distribution systems for non-Indians. Were you then the contracting officers technical representative with the inspectors under you?

Morton: Hm umm..

Storey: How did this work?

Morton: No. I was the coordinator and facilitator. The actual programmatic staff work remained with those parts of the organization that were charged with those responsibilities. So if I needed someone to review the design, I went to the engineering part of our organization, which reported to the construction engineer, and said, "Two weeks from tomorrow we're going to get a set of specs from the consultant." I can usually give them a little more advance notice than that, but the concept being that I would notify them of the schedule, notify them of the product that they could expect, set milestones for the review and the delivery of the review comments, etc. So I became more of a coordinator, to make sure all the pieces of the puzzle came together at the right time.

Morton coordinated the work that needed to be done on the distribution systems, but did not actually supervise the work done by Reclamation

Storey: Does that mean that you were working for the construction engineer also?

Morton: No. No. I worked for the Project Manager. I would employ, beg, cajole, twist arms, to get the various parts of the job done: whether I needed a repayment contract; whether I needed an operation and maintenance contract from our water and land staff; if I needed an environmental assessment and FONSI from our Environmental Division; whether I needed a right-of-way certified from our Realty Division; whether I needed a design approved by our Engineering Division -- they all worked for other division chiefs. The people who were doing the work worked in their chain of command, worked for other division chiefs, which reported

to the construction engineer, or the Assistant Project Manager, or the Project Manager. But I worked one step below that, and made sure that everything was coordinated amongst all the parties so that we could get the work done.

Storey: Well, then were you a one-person office?

Morton: Pretty near. I started off as a one-person office, then they decided that with all the paperwork, I really needed a clerk. Then they found out that while I was an engineer, there was no way I could personally deal with all of the engineering issues that were cropping up. So then I had another subordinate engineer who worked for me. At the peak of our activity we were three.

Storey: I can imagine that when the district, or the water users, came in and said, "Well, we want a line with two inches instead of four inches of concrete," that the construction engineer's staff had something to say about that. How did that work between you and them? Did you find yourself in the middle of this, or how did you work this?

How the Construction Engineer and his staff related to the distribution systems project

Morton: Oh, yeah, all the time. All the time. The lining thickness wasn't a big issue, but one that really was of major engineering significance was the plan and profile for the Santa Rosa Canal.

Issues about design of the Santa Rosa Canal

The Santa Rosa Canal is a thirty-two-mile-long canal that crosses the Santa Cruz Valley. It starts on the east side of the valley, had a turnout on the Salt Gila Aqueduct near the terminus of the Salt Gila Aqueduct, and extends all the way across the valley. It serves the Central Arizona Irrigation District, which is generally to the east of the Santa Cruz Channel. It serves the Maricopa-Stanfield Irrigation District, which generally lies to the west of the Santa Cruz River Channel, and then serves

the Ak-chin Indian community, which is basically on the far western edge of the Maricopa-Stanfield District. So it serves three irrigation districts. Like I said, it's about thirty-two miles long.

The Santa Cruz Valley is subjected to severe land subsidence due to dewatering of the groundwater basin. The question at that time was, well, how much is it going to subside, and for what period should our design reflect that subsidence? Should we look at it for the next ten years, or the next fifty years, or the next hundred years? Of course, on the main aqueduct system, our geologists, and our engineers, had concluded that we're going to give a good product to the CAWCD, Central Arizona Water Conservation District, we need to design it for what we think is going to be the subsidence for the next hundred years. Because, when we build this thing, it's going to be in service for the next hundred years.

Many of the irrigation districts at that time were saying, "Well, we don't need a hundred years of service life. We know darned well we're going to go out of service in the next twenty years, or twenty-five, or forty years. Urbanization is going to catch up with us. Even if we don't have houses on our farmland, urbanization pressures are going to drive us out of business. People don't want to smell dairy farms. If their house is two miles away from a dairy farm, they're going to scream and holler. Zoning will force us out of business. Something will happen to force us out of business. Why design it for a hundred years?"

Good argument! I mean, we had very many situations here in central Arizona that have materialized along those lines. Spur Land and Cattle Company has moved their cattle-feeding operation three times in my lifetime, since I've been here in 1952. So I mean, it's not anything

The Santa Cruz Valley, which the Santa Rosa Canal crosses is subsiding markedly

Design issues on the Santa Rosa Canal

unique. It happens. This part of the country is just urbanized quite dramatically. It's been subjected to urban sprawl, and those kinds of pressures are not conducive to large-scale irrigated agriculture. So I think many of the farmers were right on when they said, "We don't need to design this thing for more than twenty years, or thirty years, or forty years."

However, in the case of the Santa Rosa Canal, we had a perpetual requirement to deliver CAP water to the Ak-chin community. We had to get that water thirty-two miles across that valley, as far as we were concerned, forever! I mean, that was our mandate under the Ak-chin Indian Water-Rights Settlement was that the federal government would insure the water rights of the Ak-chin community by conveying the water, essentially, in perpetuity. The farmers and the board of directors for the Central Arizona District and the Maricopa Stanfield District, which from a capacity perspective probably had 80 percent of the Santa Rosa Canal, was saying, "But we don't want to design it for a hundred years." We think we're going to be in business for twenty-five. We're willing to go for forty years.

We all brought in our own geologists and also said, "Well, irrespective of the time frame, how fast is it subsiding? Is it going down at a tenth of a foot per year? Is it going down at a hundredth of a foot per year? Is it going down at two feet per year? Well, there were some areas that were going down two feet per year.

But we had to reach agreement on that, and that was a technical solution. Their number was smaller than ours in terms of subsidence per year. I don't remember the exact number, but it was on the small end, but it was still within our range. I think it was on the very low end of our range, and the high end of our range was like three

Reclamation has a perpetual obligation to deliver water through the Santa Rosa Canal to the Ak-chin Indian Reservation

times what the low end was. I'm just going to be arbitrary and say it was like two-tenths of a foot per year was what they wanted to use, we wanted to use six-tenths of a foot per year, but we knew it was somewhere between two-tenths and eight-tenths a year. So I think we probably agreed on something like four-tenths a year.

Then the question was, well, is that forty years? Four-tenths times forty years? That's sixteen feet. Do we design for sixteen feet of subsidence? Or if we use four-tenths, do we design for forty feet of subsidence -- a hundred years.

Well, we concluded that forty feet might be a little bit out of sorts. But the difference between sixteen feet and forty feet, that was a heck of a lot. The intent here was you didn't want to have a humpback canal. You didn't want to have a piece of the canal in the middle that was lower than both ends. You couldn't get water out. You wanted to design it so that the downstream end was always lower than the upstream end, so you could always flow water through it. That means you had to go in to cut on the west end quite a little bit in order to make sure that it -- the subsidence was going to take place in the middle of the valley, obviously. There's more subsidence in the middle of the valley than on the edges of the valley. So how much more subsidence do you take into account so that you can get water out of the ends of your canal and deliver it to the Ak-chins.

Well, we accommodated that by saying that whatever design was adopted had to provide water to the Ak-chins. So we always made sure that even if the subsidence occurred, and the differential subsidence was such that the middle of the canal, the midsection of the canal, the

Why the issue of subsidence under the Santa Rosa Canal is very important

Design issues to be addressed in the Santa Rosa Canal

milepost fifteen through twenty, if it subsided more than mileposts farther to the west, you could always get Ak-chin's entitlement out. You could always get 300 second-feet. This was a 1,600 second-foot canal, and you could always get the 300 second-feet for Ak-chin out.

So we basically designed for sixteen feet, and then the invert elevation of the downstream end was set so that you could always get 300 second-feet out, even if it did subside thirty feet. We decided forty was too much, but we agreed that thirty feet over a hundred years would be what we would use. We would design the canal for fourteen feet for service to everybody, but for Ak-chin, we'd design it for thirty, and we had to put additional freeboard in this middle section so that if the middle section subsided, there still was freeboard to operate in. So there's an additional lining height in the middle section. At the worst case, almost sixteen -- well, no it's not either. Sixteen feet. It's about eight feet. So you've got an additional lining height and bank height at the middle reach of the canal, at about milepost fifteen, where it's about eight feet higher than what normally you would be required to do if you didn't have any differential subsidence.

So that was probably the singular, longest argument both from a technical sense and a political sense. We had to protect our responsibility to deliver water to the Ak-chins. They were trying, of course, to minimize their costs and not buy something that would operate forever and ever -- but, in fact, we still had this commitment to operate it for at least a hundred years that we would normally build into the design. That issue was probably debated for a year, between technical analysis, cost estimates, tradeoffs, redesign, political and policy issues that we had to get responses out of Washington on. Because we

*How the Santa Rosa Canal,
as built accommodates for
subsidence*

weren't the sole protector, if you will, of the Indian water rights. I mean, the Department [of the Interior] and the Secretary of the Interior needed to be included in that loop. We just couldn't unilaterally agree to do it that way without, first of all, verifying that was acceptable in the Department of the Interior. It took us a good year before we could say, "Now, okay, this is the criteria we're going to actually use for the design. We can get on with the hard design aspects of it."

Storey: So if I understand this, the way subsidence was accommodated was that the canal in the middle of the valley, where it could subside more, was made higher so that when it subsided, the water level could rise, and it would still be delivering water out the end.

Morton: Right.

Storey: Interesting.

Morton: We just have a -- well, it's not even a trapezoidal shape, but it's a heightened bank height, with heightened freeboard where the concrete lining is above normal. Trucks driving along the O&M road and you're looking down at the water surface, and you may be --

END OF SIDE 2, TAPE 1. JULY 15, 1996.

BEGINNING OF SIDE 1, TAPE . JULY 15, 1996.

Storey: [This is tape two of an] interview by Brit Storey with Larry Morton on July 15, 1996.

So all of a sudden you're going up a hill.

Morton: Well, essentially, you're going up a hill. You don't notice that it's a hill, but the water's farther and farther below you as you're driving along the O&M road. You're looking down at the water and lo and behold, it's down there ten feet. Well, it's not like you've got up a mountain or anything. The topography looks exactly the same. It's all nice and flat. But here, instead of being three feet above the water surface, now you maybe eight or nine feet above the water surface. You say, "Well, why are we doing this?" Well, the whole thing is that we think our projections which are that part of the valley is going to subside, but as that subsides, the water will rise. It will be a little bit wider, because you're dealing with a trapezoidal shaped canal, but the water will rise, and the water surface will still allow flow to Ak-chin. Otherwise, we'd have this trapped dead spot in the middle of the canal.

Storey: How are we doing on subsidence out there?

Morton: You know, I haven't run out and looked at that thing for about four years. We were running right about .22 feet per year.

Storey: .22 feet.

Morton: Right. For the first -- '89, '90 and '91, and I haven't, in the last five years I've kind of lost track of it all. I really don't know.

Storey: Tell me about costs for this. I would think that a deeper canal would be more expensive. If I were a water user, I could see coming in and saying, "Wait a minute, this is a part of your trust responsibility and the extra costs have to go to the Federal government not to us."

*How costs worked out and
are allocated for the Santa
Rosa Canal*

Morton: I don't disagree with that, and that was an argument that they made with us. But the bottom line was, we also had a single purpose cost. We could have put a 300 cubic-foot-per-second pipeline across that valley, not worried about subsidence, not worried about overdesign, and saved ourselves -- well, maybe not saved ourselves, but we would have known absolutely what our costs were, because we were in a single-purpose system. We didn't have to allocate costs. We didn't have to deal with two or three other entities on the cost relationship there. So the single-purpose alternative set our [cost] cap. They could have alleged that we should have picked up every incremental cost of that canal, and maybe we should have, but we were capped by our single-purpose costs, and we got to that real quick. I mean, it was either you take our \$26 million dollars, or we don't play with you, was about the size of it.

As it worked out, they were more than, I won't say happy, but they found our financial deal to be to their benefit when they looked at their bottom-line cost. Like I said, I think, right now the capacity is that the non-Indian irrigators have almost 80 percent of the capacity, close to 80 percent of the capacity. We reserved the first 300 cubic feet per second. We don't use that. They can use the rest that the Federal government is not using. I don't remember, seems like it's 80 percent. Let's see, I think we use about 200 out of 1,600 is twelve-and-a-half. We must use 250. Yeah, it's closer.

Anyhow, the bottom line is that it was an advantageous deal. I think our single-purpose alternate was like twenty-eight-and-a-half million. We allocated about twenty-six and a half. So essentially, the Federal cost was at a cost savings

How the costs for the Santa Rosa Canal worked out for the parties in interest

of about \$2 million, and they got a \$50 million canal, of which they have roughly 80 percent of the capacity at any given time, and they're only paying 40 percent of the costs, something like that. So it worked out for both parties. We got a cost savings and they got a cost savings.

Storey: Now, you were sitting here coordinating all of this discussion. What were the people in the construction engineer's office saying to you as all of this discussion was going on?

Morton: They were amazed that we were doing this. This was foreign to anything anybody in the construction engineer's -- well, it was foreign to anything Reclamation had done. Traditionally, we have two types of programs. We came in and did the job ourselves, and didn't deal with fifteen different entities on a given job, or they applied for some money, the construction engineer never saw it, and the loan engineer parceled out the funds, advanced the funds, and the job was done, and the construction engineer didn't know about it. It was kind of like, why do we have this "loan" program where we're paying only 80 percent of the cost, but we've got to do all this coordination. It was a Rube Goldberg type of operation as far as the construction engineer was concerned, and his staff.

I had to have their support. I was not a technical expert. I couldn't verify that the land subsidence was two-tenths of a foot per year, or use these dynamic models that the geologists were using that predicted -- each party had different predictive models that says, "Yeah, this is what we've seen for the first couple of years, but as you suck more water out, and the body of dewatered soil above it becomes larger, then the weight of the soil, in turn, would cause it to do more--would

Reactions of the Construction Engineer and his staff as the negotiations with the irrigation districts on the distribution systems proceeded

cause acceleration of the subsidence. I was not that kind of a technical expert.

But those were the kind of debates that they were having, so I had to rely on the project geologist and his staff, and they [would] bring in the USGS with their latest information. The consultant would bring his geologists in and they'd pore over the geologic maps for hours at a time and talk about coefficients of repose that I didn't have the least idea of what they were talking about, but I understood the concept. So I'd have to rely on the construction engineer's people, or in the case of environment, I'd have to rely on the environmental division's biologist. At least I'd been their boss for a couple of years previous to that. I knew something about how you do an environmental impact statement, and what an environmental assessment was, but some of the other engineering aspects, I'd not been exposed to.

Same way on realty issues. I knew a little bit. I'd worked in the Water and Lands Division for several years before going to environment, so I knew a little bit about land acquisition and what the rules and procedures were, and what the laws that govern acquiring lands were. But the more detailed aspects of the acquisition program, I had to rely on the realty staff for that.

They all thought I was crazy, I think, because I was giving them the procedural and policy guidance, and they had to rely on their own specific types of guidance that they might have, but they had to adhere to my program.

They kept asking, "Why are we doing this?"

The answer always was, "Well, this is the only way we could figure out how to get these delivery systems built in time to take delivery of

Why coordination of distribution systems construction required the cooperation of the Construction Engineer

CAP water when you get the main aqueduct system."

Otherwise it would be out there piecemealing the construction of the distribution systems and some loan program, and having to compete with the other Reclamation states for a piece of the loan program. I think our total Federal expenditures were on the order of \$240 million over about eight or nine years. We spent \$240 million. I think our loan program at that time was like \$15 to \$20 million a year, and you were having to compete with the other sixteen Reclamation states for a piece of that. I think our peak year we did about \$55 or \$60 million worth of work on CAP distribution systems just by themselves. That had been three years of the loan program at that time.

So the justification was, we can get the money appropriated directly to CAP, whereas these entities have to go through a traditional loan process, a Small Reclamation Project Act loan process, or a Distribution System Loan Act process. They're going to be standing in line for the next twenty or thirty years. So it's a way to get it built, and we just have to live with the hardship of not complying with what our mind-set was of a traditional Reclamation job.

Storey: When we agreed to deviations from our standard guidance, was this a situation where each deviation was unique or was it more, as I sense what you were saying, that they would be uniform deviations for everybody, or was it a combination?

Morton: It tended to be a combination. There were some deviations that were specific to a given site, and the one I would point to would be the Santa Rosa Canal across the Santa Cruz River Valley. That was unique to that site. There were a number of

Why Congress passed a special loan program for CAP non-Indian distribution systems

How granting a deviation from Reclamation standards affected other distribution systems

deviations in that situation that could only be at that location. But there were others like lining thickness. We agreed on two-and-half-inch lining, and everybody got two-and-half-inch lining, from Harquahala to Cortero-Marana. I mean, everybody got two-and-half-inch lining. The situation generally could have been unique also to individual consultants. An engineering consultant for one entity might propose this type of construction. A different consultant for a different entity may have said, "No, no, no, that's no good. We don't even want to propose that type of construction. We want to propose this type. This is what we're familiar with. We've built canals like this. He doesn't know what he's talking about."

So our variances and deviations might have been associated just with a given consultant. As it worked out, there were only three consultants -- no, I'm sorry, there were four consultants, four engineering firms that worked with the ten districts that we did business with. -- Well, yeah.

There was one consultant who only had the Chaparral City Water Company for his client. Then there was one consultant who did Harquahala, Tonopah, and Hohokam districts. There was one consultant that did Maricopa-Stanfield, Central Arizona, and New Magma districts. And then there was one consultant that did Queen Creek, Chandler Heights, and Santan districts. So no one consultant had more than roughly thirty percent of the entities.

But as it worked out, there was one consultant, from a dollar perspective, or from a surface area extent, or miles of ditch extent, did probably, I'm going to guess, probably a little more than 50 percent of the actual work, because

Sometimes variances were associated with a given consulting firm

the Central Arizona -- the biggest single district is the Maricopa-Stanfield District. The second biggest district is Central Arizona, and New Magma is probably, I think they would probably be fifth behind Harquahala and Hohokam. So you had one consultant that was employed by the first, second, and fifth largest districts. So that consultant did probably, from a dollar volume, did at least 50 percent of the work, would be my guess. And, I don't know that they requested any more variations than any of the other two consultants.

Probably the easiest consultant to deal with was the firm that did Chaparral City Water Company, because Chaparral City was a domestic water purveyor. They're the water purveyor for the water retailer for Fountain Hills, Arizona -- for the community of Fountain Hills. He was a Southern California consultant, and all he knew was municipal, domestic water service. So he just came in and proposed a pressure pipe down Shea Boulevard from where Shea basically crosses the Hayden-Rhodes Aqueduct. I forgot what the current name is. It used to be called the Granite Reef. He just proposed a pipeline that ran parallel to Shea Boulevard from where it crosses the Hayden-Rhodes Aqueduct to where he wanted to put his well water storage tank, on the side of a mountain out in Fountain Hills.

It was pretty straightforward, and he built literally hundreds of miles of domestic pipeline systems, so it was not a very complicated operation. He didn't have any deviations. He probably showed us a trick or two with regard to the water hammer analysis and pipe design, because he had done so much of it -- pressurized pipe design. He was well known in Southern California. He didn't really ask for any deviations and, like I said, we probably learned a little bit from him.

Storey: But what about working with the other three?

Morton: The other three, yeah, they each had their unique operations. One of them was principally a California firm, who had come in and entered into some contracts with a number of clients. The other two firms were local firms, here in the Phoenix area. Those had been around -- well, one firm had been around for about thirty or thirty-five years. The founder of the firm had formerly been a Reclamation employee, had worked as the state water engineer for a couple of years, executive director of the Interstate Stream Commission. He was well known to us, but he hadn't done a lot of irrigation system work in his recent past. So he was a known commodity but an unknown.

The other entity, also a local firm, had, oh, ten-, twelve-years of experience, both here and in Nebraska, on Reclamation projects. He was pretty well known to us and had a number of loan-program clients here in central Arizona, preceding the time we got into the CAP distribution systems. So we'd seen a lot of his work over the years as well, so we were pretty comfortable.

The consulting firm that came in from out of town also had a lot of work primarily in California and Central Valley. So while we personally, my little staff here in Phoenix, personally had not had a lot of working relationships with them, we were pretty knowledgeable, and we were able to talk to people in Mid-Pacific region and get comfortable with that firm pretty quickly, too.

I think we were pleased. Obviously all three of those firms were interested in getting the best deal they could for their client. They were trying to do a quality job, and I don't think we walked away with any animosity or anything.

Where we had conflicts, we realized that those were differences of opinions, or differences in technical experience, and we were both trying to get the best deal for our clients, whether the clients were the United States, or the clients were an irrigation district. So we kind of grew to appreciate the work of each to the other. At the end it was a good relationship. At the beginning it was like pulling teeth.

Storey: What were some of the other -- you've mentioned the Santa Rosa Canal, which, if I'm recalling, is the largest canal that takes off of the main aqueduct.

Morton: Yes.

Storey: What were some of the other areas of discussion that came up on some of the other projects?

Morton: Well, we had a situation on the Tonopah Main Canal. It was a relatively small canal serving the Tonopah District. I think the Tonopah District consists of roughly 5,000 acres in western Maricopa County. So it wasn't a very big canal. I'm thinking it was something on the order of 70 cubic feet per second, something on that order of magnitude.

It's a fairly steep canal, and the district's consultants did not want to put conventional drop structures in the canal, as each structure would have to be individually constructed. They wanted to slipform the whole length of the canal without any intermediate structures in it. I think they had about ten eight-foot drops. I mean, we had eighty feet of head that we needed to burn up. Normally you could burn that up in a pipe or in drop

Issues on the Tonopah Main Canal

Tonopah District's consultant wanted to use a slipform canal with baffle blocks, a form of construction alien to Reclamation experience

structures, but he wanted to put baffle blocks in the middle of the canal.

Storey: To slow it --

Morton: To slow it down. To slow the velocity down so that it didn't jump out of the canal when it got down to the farmland. We were coming through non-irrigated land for, I don't remember the length, five miles or something like that on a fairly steep slope, then it flattened out as you got to the valley, and entered the lateral system and delivered water to the farmlands in the valley. But in the supply canal which ran from the Hayden-Rhodes Aqueduct down to the farmland, I think it was about -- God, I can't even remember now -- five miles, let's just say. It might have been longer than that. We concluded that he needed about -- our typical drop structure is an eight- to ten-foot drop, and we concluded that he needed -- I think there was about ten of those. Well, and he would have had the line half a mile, put the drop structure in, then he'd put his paving machine back in and line the next half a mile. He'd have to take everything out and put it back in. So he proposed to put baffle blocks in the middle of the canal on the invert of the canal. So the water would come down and impinge on a baffle block, put a hydraulic jump in, and burn up the excess energy through a series of these baffles -- hydraulic jump energy dissipators, with baffle blocks to create the hydraulic interference, which would break up the flow and burn off the excess head.

We said, "No way. That's entirely foreign to any reasonable practices."

He said, "Well, bear with me. We will go to the Denver labs, and we'll pay for a hydraulic model."

So they went to the Denver lab, the E&R Center labs, and they put up a hydraulic model, built a hydraulic model, and modeled these baffle blocks that he wanted to put in.

"Okay. Yeah. It'll work, but it seems a little foreign to the way we normally do business. We still don't think this is a real good idea."

Consultant said, "Well, you told me if it worked, and if it was cheaper, you'd give me a chance to prove it. We think we ought to build it."

So we finally agreed. "Okay, it is cheaper. You've paid -- " I don't remember, \$40,000 or something like that to model it in the lab. "You demonstrated that, theoretically, it'll work. We don't feel very comfortable with it, but we have no technical reason to say, 'No, you shouldn't do it, and we're not going to allow it.' So we'll grant you this variance to put baffle blocks in the bottom of this."

I think they call it a chute canal, because of a very steep chute. So they built it, and we turned out water, and we had video cameras out on the canal, and surveyors out there to check and see that it operated, and at the low flows, it seemed to work okay.

They said, "Well, let's open her up and see what happens. See if the water comes flying out, or it doesn't get around the bend down at the end of the canal. Let's see what happens."

Well, it happened all right. The little baffle blocks were placed in there, into the canal. They were actually cast in the yard, and they put it on a flatbed truck, and the crane came out and put the baffle blocks in the bottom of the canal. Well, there was just gravity. Their own weight

was holding the baffle blocks in the bottom of the canal. Well, the water come down the canal, hit that first baffle block, and you just had a row of dominoes going down the canal. These baffle blocks just went zipping down the canal. There wasn't anything holding them in place. They weren't tied to the canal.

Storey: They weren't integrated into the canal.

Morton: They weren't dowelled into the canal. They just shoved them. Water flew out of the sides of the canal, it eroded one bank out. It was such a disaster, I was just about ready to just die right there.

Storey: You were there.

Morton: I was there. Oh, this was going to be the greatest thing. I think that we probably opened up the turnout to like 110 percent to see what would happen, and it just jumped out of the canal, eroded the embankment. I don't remember, 120 baffle blocks got shifted downstream anywhere from twenty feet to half a mile or more. I mean, it just moved it a mile up and down the canal, the force of the water.

Then we got it all shut down and went back and concluded that, well, we needed to dowel the baffle blocks into the canal. They had to be somehow an integral part of the canal. We got it to work, but fortunately, the maximum turnout was predicated on all the land taking water at any one time. Fortunately, we haven't had that situation. I think the most land that they've had has been, oh, 60 percent of the irrigable land that's been irrigated at any one time, so they probably

only operated at probably two-thirds of their capacity.

If they ever went to the capacity, I swear, those blocks will still move, because we dowelled through, and then we pressure grouted round those dowels. Just took a rebar -- a steel dowel -- and there's three of them in each baffle block, and drilled through the block, and through the concrete lining, and then put the bar in, and then pressure grouted around the bar. So now these trapezoidal blocks are held in place in the bottom of the canal by a rebar. I think at low flows where the water comes down and sits, comes up on the edge of the block and then falls to the next block, it's kind of like a stair-step approach. It works okay.

Storey: It sounds like a whole bunch of little drop structures.

Morton: Yes, exactly. Like a whole bunch of little nine-inch drop structures instead of ten eight --

Storey: Eight-foot ones.

Morton: Yes, exactly. That's exactly what it is, is a whole bunch of little drop structures. So long as you're running the canal so that they're each individual pools that they're jumping over to get to the next pool, you're okay. But once you got that water going across the top of them, straight down, well, then that upper portion of your canal reach is just like laminar flow, and the whole thing is just carrying it down, and it's like the velocity across the top of the blocks is what's sucking the blocks downstream.

END OF SIDE 1, TAPE 2. JULY 15, 1996.

BEGINNING OF SIDE 2, TAPE 2. JULY 15, 1996.

Morton: I think that if the Tonopah Irrigation District ever got in a situation where they elected to operate that at their full capacity, or what was advertised as full capacity, they'd have a similar situation on their hands. Maybe the blocks wouldn't move, but I suspect that when the water got down to the flat, it would jump out of the canal. It would just come flying right out of the canal.

Storey: Well, that's an interesting one. Do you have any more interesting stories about this to tell me?

Morton: Well, that was one of the most interesting, which resulted from our negotiations on waivers. Certainly, if we'd have been the constructor-contractor-designer-owner we would have put conventional drop structures in. There never would have been a story.

I can't really think of any. I mean, every entity has their own unique story, I guess, whether it's--most of the land in the Harquahala District went into bankruptcy before the water was put in service. They had a loan and, I think, probably 40 percent of the district was owned by the Crocker National Bank in California, before we started repayment. We've had two other districts declare bankruptcy after we started delivering water to them. The Harquahala District didn't go bankrupt, but the individual farmers in the district had declared Chapter 11 for themselves individually. I think that two members on the board, personally had gone bankrupt. Of the three-member board, two of them were bankrupt farmers.

Many farmers in the Harquahala Irrigation District went bankrupt before Reclamation delivered the first CAP water

Storey: Well, now, if I'm understanding correctly, there would be a CAP repayment contract through CAWCD. Then there would be these individual loans to put in the delivery systems?

Morton: Right.

Storey: Directly between Reclamation and --

Morton: The irrigation district or the water company.

Storey: So CAWCD was not involved in the delivery system.

Morton: No, they weren't involved at all. The only point of involvement was at the turnout, and many of the districts came to Reclamation and said, "We've been allocated X amount of water, but we think in the early years, because the Indian contractors won't be using their entitlements, and the municipalities, the cities won't be fully utilizing their entitlements, we think that the turnout should be 20 or 30 percent larger than what our contract entitlement is, because during those times, when the Indians and cities are not using their full entitlement, we're going to be entitled to take that water. We're going to have the ability to take that water. We're going to build our canals and delivery systems in anticipation of that. So the turnout has to match our delivery capability, and not just what our contract calls for."

That was the point at which the CAWCD had to agreed too, because the cost of the individual turnouts from the main canal system is a repayment burden of CAWCD. Everything downstream of the turnout, on the distribution system, is the responsibility of whoever's getting the water through that system.

CAWCD was not involved in the delivery systems

How CAWCD related to the delivery systems

Storey: So CAWCD operates the aqueduct to the Santa Rosa Canal, (Morton: Right.) and then it's no longer their responsibility.

Morton: That's correct. That's correct.

Storey: Oh. I guess I was thinking of them as encompassing the whole system.

Morton: No. Generally, the facilities are singular. In other words, the Harquahala main canal only serves the Harquahala Valley Irrigation District, and the irrigation district operates and maintains that canal, as well as all of the internal delivery systems. Same way with Tonopah and New Magma and all the rest of them.

Santa Rosa is unique in that it's a multi-user canal. Right now there are three users. The original design anticipated four users: the Chuichu Indian community on the Tohono O'odham, in the Tohono O'odham Nation Chuichu District is the fourth user, if they elect to ever take CAP water. But Central Arizona, Maricopa-Stanfield, and the Ak-chin Indian community are the three entities now that use Santa Rosa Canal to convey their water entitlements. Maricopa-Stanfield is the watermaster, and actually, operates and maintains the Santa Rosa Canal. They operate it and maintain it under the direction of the water board that's represented. We have one representative, Central Arizona has one representative, Maricopa-Stanfield has one representative, and the Ak-chin community has an observer. So, they'll meet every quarter. The water board will meet every quarter. They overlook the quality control of maintenance and operations, and design the budget, and approve the budget, and determine the assessment that will go

to each of the entities, how much money they have to pay for operation and maintenance.

But the work force is employed by the Maricopa-Stanfield Irrigation and Drainage District that operates and maintains the Santa Rosa Canal. All of the other delivery systems are operated and maintained by the respective entity for which the water is delivered.

Storey: Now, you were doing this '82 to '85, as I recall.

Morton: Yes.

Storey: And, if I'm recalling correctly, we delivered our first water in '83.

Morton: Yeah, we delivered it out in Harquahala, and I was there. I was thinking it was '84.

Storey: Well, it may have been.

Morton: I was thinking it was like May or June of '84.

Storey: So my question that I was trying to lead to is still about the same, and that is, weren't we a little late in trying to get the delivery system set up if we were already delivering water in that period?

"Weren't we a little late in trying to get the delivery system set up . . . ?"

Morton: Um-hmm.

Storey: If so, what was going on? Why was this going on that way?

Morton: Well, there were a couple of reasons. First of all, there was the issue of who gets the water and, as we talked some time ago, while Gil Stamm had directed the Phoenix office, and more specifically myself and Tom Burbey, in working with the area manager, Cliff Pugh, at that time, to define how

Why the delivery systems were developed late in the process of CAP development

much you should give the Indians. The actual allocation took several years. There was the '78 allocation, and an '80 allocation, and the contract then that took place in December of 1980. So the state was unable, or at least they would tell you they were unable to do their allocation until they first determined how much of Arizona's remaining entitlement the Secretary was going to reserve for Indian uses. In turn, when they finally came out with their allocation, and the Department accepted that allocation, began the water contracting water process for that allocation, we also started entering into contracts with the Indian communities, and that engendered the lawsuit *Babbitt versus Andrus* on the validity of those contracts, and the need for an environmental impact statement. So the whole issue of how much water, who gets it, who's actually going to contract for it, was always up in the air.

Well, one of the cornerstones of the reclamation program is you've got to have a water service contract, and a repayment contract of some nature in place, generally, before you go out and build delivery systems. Sure, you can adjust the final costs, but you've got to go through a process to say you've got the ability to repay this much money over this period of time based on the economics of your operation. If all you grow is alfalfa, your repayment capacity is going to be a heck of a lot less than it would be if you grow avocados, for example. If you've got a lot of avocados that you're delivering project water to, your payment capacity's going to be substantially greater than might be the case if you were just growing alfalfa, which has a relatively low crop value.

So the bottom line is, there's a process to get to that point of actually starting construction,

Determining who got how much water on CAP

and the first issue is always going to be, well, how much water does each entity get. That took a long time to determine. Even though we started that process back in '73 or '74, during Gil Stamm's administration, it took us a long time to resolve who gets the water. How much is each entity entitled to? What are the variations in their entitlement? Do we design for the minimum entitlement; do we design for the average entitlement; do we design for the maximum entitlement?

Then Congress came in and said, "Well, your authority is limited to \$100 million in total." We concluded we needed \$350 million in total project cost to build all these distribution systems. So then there was a amendatory legislation to allow for indexing. The *quid pro quo* for that amendatory legislation was, not only did you have to repay it, but 20 percent of the project cost had to be contributed concurrent with construction, and the remaining 80 percent had to be repaid.

So there were a number of political accommodations that had to be reached, including the passage of this act that allowed substantially more funds to be appropriated, to actually build the distribution system. Otherwise we were faced with saying there's \$350 million worth of need here, we've got \$100 million we can actually spend, and somebody was going to have to make the decision who got it first. Was it the first guy that walked through the door in 1980 that says, "I'm ready to build, give me my money." Or were we going to say, "Well, we'll give you the money, but it'll only be in proportion to the amount of water you've signed up for"? Or "It'll only be in proportion to the amount of acres that are actually farmed in your district." I mean, there's lots of different ways that a limited resource could have been allocated amongst all the applicants.

***Congress permits indexing
of distribution system
costs***

Nobody wanted to make that kind of decision, so the solution was, well, let's go get the act amended. It's kind of an anomaly anyhow. The rest of the project is eligible for indexing due to inflation, why shouldn't the distribution system be eligible for that kind of accommodation.

So all of that tended to slow the process of actually getting things started. It wasn't until 1983 that we actually inked, signed, executed some non-Indian water service contracts and distribution system repayment contracts. In the case of Harquahala, Maricopa-Stanfield, New Magma, and Central Arizona, we executed them simultaneously in one big celebration, if you will. It seems to me Harquahala signed their water service contract first, but we had not yet approved their plans for the distribution system. It was about a month later that we signed it. During that month, we'd simultaneously signed these other three districts' water service and repayment contracts. So it was kind of like Harquahala was first, but first for water service, but they weren't first for distribution system repayment. The other three were all simultaneously. I think we were down at the Adams Hotel, and we laid everything out on the table, and we had three boards of directors and the Regional Director went from one board to the next board, and signed all the documents. There was a big, formal execution, signing ceremony associated with those contracts. I'm pretty sure it was '83 before all of those were signed.

Fortunately, we were able to get the Harquahala main canal constructed and in the ground, and by the time the water got there in the spring of '84, I think we were able to deliver water to about 3,000 acres in the Harquahala Irrigation

In 1983 Reclamation actually executed the first non-Indian water service contracts

Reclamation approved distribution plans for the Harquahala Irrigation District after signing the water service contract

We were able to deliver water to the Harquahala Irrigation District in spring of 1984, but full service came several years later

District. We didn't have the rest of the distribution system in. It wasn't until about '86 or '87 that you could serve water to the whole district, but at least when the water was in the main canal, and we were prepared to operate the main canal -- of course, this was out in Reach Five of the Grand Reef Aqueduct, and there's twelve reaches, so it wasn't until November of '85 that we got water into Phoenix. So we still had a lot of construction still on the main aqueduct system, another year-and-a-half's worth of work, to get water into Phoenix. Harquahala's sixty miles west of Phoenix, so it was the first place to receive water.

Storey: What kind of ceremony was there? You said you were there, I think.

Morton: Yeah.

Storey: Was there any ceremony?

Morton: Oh, yeah, there was a big ceremony, Regional Director, Project Manager, board of directors for the district, all stood up on the canal bank at the turnout. Every TV station in town was out there. Everybody had to hold onto the wheel on the gate, spun the gate, opened the wheel, let the water out. Water came gushing down the canal. Fortunately, it stayed in the canal, and [we] all got in cars and tried to race it down to the farm. The turnout is, oh, I think probably about four miles, turnout for the main canal, Granite Reef Aqueduct. It's about four miles north of the interstate, and the farmland is about a half a mile south of the interstate. So it was about four-and-a-half or five miles. You had to go across Interstate 10, so there was only one bridge crossing over the interstate, so we all drove down this dirt road, and across the bridge, and

*First water celebration at
Harquahala*

down the Harquahala Valley Road to where the water was actually delivered into the field. All the dignitaries and, I think, most of the observers got down to the farm before the water got down there. So we all parked our vehicles and went over. And the chairman of the board, he's out there in his bib overalls, filled up the ditch. The ditch was pretty well filled up. Matter of fact, I think it was well water that was primed. Anyhow, they had a head ditch that was all filled with water, and he got a couple of siphon tubes and started to siphon into the ditch furrows. He had some cotton growing that was probably about twelve inches high, I guess. As soon as he had a pretty good stand of water going down the furrows, and he had two or three furrows going there, he ran out in the middle of the field and jumped right in, sat right down in the water, and praised the Colorado River water as their salvation out there in the Harquahala Valley.

In retrospect, Harquahala Valley was, still is, it's a very fertile farmland area. Centennial Wash runs through it. I mean, it had been farmed from groundwater over, I think that they initially had a little farming there in the thirties, but really didn't get going until after the war. They had, oh, I think something on the order of 25,000 acres of historically irrigated land. But they'd seen their groundwater table decline from about 200 feet in the late forties to 500 and 600 feet today. Economically, they were hurting. They did not have a preference power contract, so they were paying commercial power rates to the Arizona Public Service for their pumping energy. From their perspective, CAP was a good deal. It was competitive from a pricing perspective with what they were paying at that time for water.

Storey: To pump it.

Morton: To pump it. Right. They had no less-costly alternative source of water. CAP was their least-cost source of water at that time. It was quite an emotional display, made even more forceful, of course, by Frank Rogers taking a belly flop in the middle of a field of little cotton plants.

"CAP was their least-cost source of water at that time."

They had a hay shed there that had been vacated. They'd moved the hay off and cleared the concrete floor of the hay shed and had a big barbecue -- hamburgers, and hot dogs, and soda pop, and watermelon. A good time was had by all. It was a very -- what do I want to say? It was a very traditional celebration and genuine -- I guess that's probably the word I'm looking for. It was a real genuine celebration from the people. There weren't very many families that lived out there. I think there was probably forty or fifty farm families.

Storey: On the Harquahala you mean?

Morton: On the Harquahala. Yes. They were all there, and they had all their kids there. I think they have a consolidated school. I can't think of the name of the district. So the kids are usually bussed to school, I think, but the people who lived there in Harquahala, several of them were on the school board, and it was like, "Well, let's get the school buses and bring all the kids back from school. They all need to see this. This is going to be part of their history and posterity forever and ever." So they had the school buses, and the school teachers, and the kids, and band. It was a quite a deal. It was one of the most enjoyable celebrations that I was involved in. I mean, I was involved in a lot of celebrations -- first water to Phoenix, first water to Tucson, first water to Pinal County. Everybody had a celebration after that, but that was really the first water delivery, to the

Harquahala Valley Irrigation District, that was the real first. It was, like I said, a real genuine celebration of people who felt like the water was going to be of an immediate benefit to them, not some long-term thing where a hundred-year assured water supply, or something like that, this was just water they were going to use tomorrow. They were going to shut down the wells and started taking that CAP water.

Storey: This was twenty-one, twenty-two years after you came to Reclamation.

Morton: Yeah.

Storey: Did they actually shut down the wells?

Morton: They did for a while. I think that at that time they found themselves, some of the farmers found themselves to be overextended. Some of the lenders foreclosed. They understood the economics of the situation, and so long as CAP water was less expensive than groundwater, they were going to use CAP water, and they did. But the problem was, I think, in the long run that other economic pressures -- it wasn't the additional repayment burden of the delivery system, it wasn't the repayment for the CAP water, it wasn't the repayment obligation associated with the main canal system. What it was, at that time, at least, was poor market prices. Even at \$50 or \$60 water, \$60 an acre-foot water, it wasn't economical to farm. Many of them found themselves in that situation, and a lot of them went bankrupt. The area's starting to recover now and, in fact, they did essentially buy themselves out of debt by selling their entitlement to CAP for the Fort McDowell Water-Rights Settlement Act,

*Bankruptcies on the
Harquahala Irrigation
District*

in '90, '91 -- '91 I guess it was. So in terms of their relationship with Reclamation, their debt has been extinguished now, because they sold their water service contract to satisfy the Fort McDowell Water-Rights Settlement Act. They saw that as an economic windfall to take care of all of the financial problems that they put themselves in over the preceding seven or eight years. So they sold their contract and bought themselves out of debt. Now, CAWCD is selling water at discounted rates, and I think they buy 40,000 acre-feet a year or so from CAWCD.

Harquahala Irrigation District sold its water service contract to buy itself out of debt

Harquahala water helps satisfy the water needs of the Fort McDowell Water-Rights Settlement Act

Storey: So that's why I saw water deliveries taking place [when visiting the CAP control room].

Morton: Oh, yeah. They're still delivering water out there and, in fact, the Federal irrigation system is still there, but there's no repayment. In other words, their repayment contract has been paid off, as a result of their marketing, if you will, their CAP contract entitlement. Once the cities or the Indian communities start using all the water that they have under contract, then there's not going to be any water for Harquahala to take. So this is an interim water supply, but they have no long-term future, because that water supply is eventually going to be dedicated to the Indian uses, or to domestic uses in the cities.

Harquahala Irrigation District eliminated its repayment responsibilities when it sold its water service contract

Harquahala Irrigation District is still getting and interim water supply from the CAP

Storey: So the government purchased their water entitlement for the Indians at Fort McDowell, is that right?

Morton: Right.

Storey: The purchase price was their repayment contracts?

Morton: Was their repayment contracts plus some cash. It was the equivalent of about a \$1,000 an acre-foot. So they had -- what did they have? 30,000 acre-feet -- 32,000 acres. The water service contract was structured so that the irrigation water service contract is based on a percentage of entitlement. So if there's a million acre-feet, as we've discussed before, a million acre-feet available for irrigation --

Storey: This year.

Morton: -- this year, Harquahala had an entitlement to about six-and-a-half percent. So they could have gotten about 65,000 acre-feet of water under their water service contract. But, they also had the right to convert based on one acre-foot per acre, their irrigation right to an M&I right, and that was what was done under the Fort McDowell Water-Rights Settlement. We got a conversion from an ag entitlement to an M&I entitlement at one acre-foot per acre, and I think that was around 32,000 acres, is in the Harquahala District. So we bought 32,000 acre-feet of water for about \$1,000 an acre-foot, if I remember right. Right at \$1,000. So the consideration to Harquahala was about \$32 million.

END OF SIDE 2, TAPE 2. JULY 15, 1996.

BEGINNING OF SIDE 1, TAPE 3. JULY 15, 1996.

Storey: This is Brit Storey with Larry Morton on July 15, 1996.

Morton: If I remember right, the discounted value of their repayment contract was a little more than \$6 million. So in terms of cash, I think they got roughly a little bit less than \$26 million worth of

Federal lenders were upset with the way Reclamation paid the Harquahala Irrigation District for its water service contract

cash. I'm not exactly sure how that was distributed, because I know that there were some lenders that didn't get paid off, including some Federal lenders like the Farmers Home Administration, who felt like some of the proceeds of that sale should have been withheld to pay off Farmers Home loans, and credit commodity loans, and some other debts that were owed by the individual farmers. That was a relationship between the individual farmers and other Federal institutions, and it was our position that we were dealing with the Harquahala Valley Irrigation District, a municipal entity under state law, and we were paying the district, and if they made distributions of those proceeds to individual farmers, then it was up to the Federal agencies to go to the farmers and get repayment. I think we were upheld by the IG in that regard, the office of the Inspector General, but it didn't set very well with some other Federal agencies who were owed money by individual farmers, that the Department of Interior allowed the district to be paid off in cash and, in turn, not reserve the debts that were owed to them, that they had to go out and collect those debts.

Storey: This would have been more recently, I take it.

Morton: Yeah, I think it was just before -- it was in the Bush administration, at the very end. John Sayre came out and signed the documents. I think it was '90 -- no, it would have been '91 -- probably '91, maybe '92.

Storey: That Harquahala sold the --

Morton: Yeah, '92. Yeah. It was in the fall of '92.

Storey: Good.

One of the things, I think, that had happened was in 1980 the Arizona Groundwater Management Act was passed. Did that influence, for instance, Harquahala? Or did it influence Reclamation's project in any way?

Morton: Harquahala was one of the exceptions to the Groundwater Management Act. They were outside of, and as far as I know, and maybe Tonopah, now that I think about it, but they were one of the few districts that were outside of an active management area. In other words, other than Harquahala and Tonopah, I think all the rest of our irrigation customers are in "active management areas." There were two philosophies guiding active management areas.

The Arizona Groundwater Management Act and CAP

Active management areas in Arizona groundwater management

Phoenix active management area was designed to eliminate overdraft by the year 2025. In other words, groundwater pumping could not be greater than natural recharge by the year 2025.

Storey: Natural and artificial recharge, or just natural?

Morton: Recharge. I guess I should have said it that way. Recharge. Groundwater recharge. Groundwater pumping could not exceed groundwater recharge by 2025, in the Phoenix, Prescott, and Tucson active management areas.

In the Pinal active management area, which is essentially Pinal County, where most of the agricultural activity in Arizona takes place, they had a different philosophy in guiding their AMA. Their vision or philosophy was one of economic decline. So long as it was still economic to pump groundwater, based on certain standards to be established, then it was acceptable to do that. They could manage their groundwater

resource to deplete to elevation 1,000 feet. They could dewater the whole area between the surface of the ground down 1,000 feet if it was economic to do that. But they would still have to abide by the conservation controls that were going to be exhibited and required of everyone. So the farmers in the Pinal AMA still had a responsibility to use best conservation practices and achieve the goals that were established by the active management advisory boards.

So the bottom line was, they didn't have this absolute ceiling that basically says if we get there and you're still overdrafting, we're going to shut you off. They didn't have to worry about that. There was some economic certainty timewise for farming in Pinal County, but they still would have to make capital investments to conserve. They couldn't just continue to pump without consideration for conservation or implementing conservation measures.

I'm not sure what this meant for CAP, except that it met continued funding restrictions that were placed on the state of Arizona, and CAP specifically, associated with the Carter administration, because that's one of the keystones of the recommendations [of the Water Project Review], was that continuation for funding of the Central Arizona Project was going to be contingent on some form of groundwater management plan and conservation plan in the state of Arizona. That's what the Groundwater Management Act was intended to satisfy, that position espoused by the Carter Administration, to insure, for Arizona, continued funding of the Central Arizona Project, and on the other side, to insure that Federal needs like water for Indian communities were not being -- I won't say they were not being adversely affected, but were not

***Carter Administration's
Water Project Review
caused Arizona to pass the
Groundwater Management
Act***

being excessively affected by uncontrolled groundwater pumping.

Other than the fact that it ensured we could continue to build the Central Arizona Project, I'm not sure that it had much specific effect on our activities in the construction of the Central Arizona Project. I mean, it was more of a local situation. It was more of a situation where the per-acre demand for water was obviously going down, so it really didn't free up any water, because we never had enough CAP water for all the eligible lands anyhow. Under our contracts, we only had maybe two acre-feet per acre. Even at the best economic water practices for today, you still have to average something on the order of five -- or maybe five is too big -- 4.15, I think, is the long-term objective, is 4.15 acre-feet per acre that's been established by the --

Duty of water and conservation on CAP

Storey: Oh, for the duty of water?

Morton: For the duty of water that's been established by the state. Well, we've got the entities we've signed up for with contracts, we've got over 500,000 acres -- 4.15, that's over 2 million acre-feet. We don't have that much water in CAP anyhow. So the bottom line is we were still only a supplemental supply, and the question was going to be whether we're 40 percent supplemental supply, or an 80 percent supplemental supply.

That became more of an economic call. If a farmer had the right to continue to pump, under the Groundwater Management Act, three acre-feet per acre, and it was cheaper to pump three acre-feet per acre, he was going to do that, and he was going to take the last acre-foot or acre-foot and a half out of out of CAP. If CAP was cheaper, he was going to take all the CAP water he could get

under his contract, and then pump the more expensive groundwater to make up the difference between his duty and the supply he had available.

So you really, from a practical sense, didn't really see much impact directly related to the construction of CAP. There's the potential for some operational impacts, but they're on an annual basis, and they're more as a result of the economics of the situation. Obviously the Groundwater Management Act changes the economics of the situation, because as various water conservation techniques move from state-of-the-art to common practice, many of the farmers are going to have to make capital expenditures to effectuate those practices, and the water duty presumably will go down, and the amount of CAP water that's delivered to various locations or various sectors is going to change, because each entity has different costs for different quantities, depending on their situation with regard to power market, or depth to groundwater, or number of wells that they can pump. A lot of different factors enter into that equation.

Storey: Did the Groundwater Management Act have a tendency to cause CAP water to be used for groundwater recharge?

Morton: Certainly not initially, because the utility of groundwater recharge is to manage a limited supply over a long period of time. Right now, it enters into the equation in the domestic water arena in that an entity, in order to continue to grow and develop, has to have a hundred-year-assured water supply. So if your land doesn't have entitlement to pump groundwater for various reasons, you can be deemed to have 100 percent assured water or 100-year-assured water supply if you've got a contract for CAP water, or you're part

Groundwater recharge

of an entity, a municipality, or a water-service company, that has a contract for CAP water. So that demand supply gets you around that proposition.

But it has a statute of limitations that runs out in the next year or so. So now you just can't have a contract, you've got to have some wet water credits, and that's where in the future you'll have to have some wet water credits. So that's where the utility for groundwater recharge really enters into it, becomes a boon to putting groundwater recharge into place, is that club that says, "Well, it's fine that you've got a contract for CAP water, but your contract entitlement for growth after 1997 only provides for a fixed number of people, or a fixed water use, and anything over that, now you have to have wet water credits someplace in the system." The state under the Groundwater Management Act, or as an amendment, or an ancillary condition to the Groundwater Management Act, has now implemented their GRCD -- their Groundwater Replenishment [Conservation??] District proposition -- and the Groundwater Replenishment District, if you're a member of the Groundwater Replenishment District, then you get to participate in the benefits of that district.

In the case of central Arizona, the CAWCD also has another hat. They are also the Central Arizona Groundwater Replenishment District. So they can go out and construct groundwater recharge projects. They can get entities to subscribe to the Groundwater Replenishment District, and then they can provide wet water credits when an entity's needs exceeds either their CAP entitlement, or the sum of their CAP entitlement and their groundwater pumpage entitlements.

CAWCD is also the Central Arizona Groundwater Replenishment District

It's a pretty good deal all the way around. A given municipality can now participate in CAP in three different ways. They can recharge in the short run their surplus supplies. An entity, for example, that envisions some growth may have a contract for 10,000 acre-feet. They take right now in direct service maybe 4,000 acre-feet. They can recharge their own entitlement of 6,000 acre-feet over a period of time, and get their own credits, or in the third situation with CAP, they can join the Groundwater Replenishment District, and that quantity of water is the water that CAWCD is not selling today. In other words, it's still over there on the river. They can bring that water in and recharge it if they have membership in the GRD, Groundwater Replenishment District, and therefore bring more of Arizona's remaining entitlement into Arizona and demonstrate to other water users in the [Lower Colorado River] Basin that Arizona is intending to use its full entitlement, and protect it from future use by other members of the lower basin states.

Groundwater replenishment is one way to demonstrate that Arizona intends to use its entire Colorado River water entitlement

Storey: Like California.

Morton: Like California. Right.

Storey: Are they actually doing this?

Morton: They've gotten to the point, they've got the statutory authority, of course, and now they've developed the infrastructure. They have all of the rules, and regulations, and procedures in place. They have a number of municipalities that have joined the district, but they only are working with one, two, three -- working on three different recharge projects, but they don't have a permit, yet, from the Department of Water Resources, and the Department of Environmental Quality, to

CAWCD had built up indirect groundwater recharge credits

actually build a recharge project. So they have their indirect recharge credits. In other words, they'll sell direct-service CAP water to a agricultural entity. The agricultural entity will agree not to pump its entitlement of groundwater. In turn, they get the credits by indirect recharge. They're not actually putting water in the ground, but they are recharging groundwater by not pumping it, is what it boils down to. So they do have a number of indirect recharge credits, but they don't have any direct recharge programs, either basins, or groundwater injection wells, or any method to actually put Colorado River water into the ground.

Now, the city of Tucson has three pilot programs under way. They're relatively small, but two use injection wells, and one uses spreading basins. The Salt River Valley cities, Phoenix, Mesa, Chandler, Scottsdale, Glendale, and the Salt River Project have joined together in what they call the GRUS Project, the Granite Reef Underground Storage Project. They do take direct delivery of CAP water, Colorado River water, and recharge it in the Salt River Channel upstream of Mesa. Matter of fact, it's on the Salt River-Maricopa Pima Indian Community. So it's on the Salt River Indian Community east of Mesa, between Granite Reef Diversion Dam and the Mesa city boundary.

Tucson has three pilot groundwater recharge projects

Granite Reef Underground Storage (GRUS) Project of the Salt River Valley cities

Storey: Then do they recover that water?

Morton: Not yet. It's a water management process that says, well, when we need it. They don't have to recover it, because they got CAP water. They're buying CAP water and they're putting it in the groundwater, in anticipation that in the year 2030 they're going to need more water than CAP will

GRUS is designed to build groundwater storage credits to provide for long-term future need

provide to them. So that's their next increment of water. So in terms of pumping it back out, they don't want to incur that investment cost, or that annual cost, of pumping it back out until they really need it. They can buy CAP water and treat it much cheaper than what they could do if they were recharging and then recovering it. So they have not yet built any recovery wells to recover those groundwater credits.

Storey: But it isn't flowing down the river as it were?

Morton: Not yet. No. No. No, I'm afraid it's going to be a long time. Even along the river channel, I think, the depth to groundwater's about 200 feet. So before they fill up that 200 foot void -- there's going to be a lot of groundwater recharge before they'll get that filled up.

Storey: I gather Phoenix probably has some pretty severe problems to deal with on down the road with water issues.

Morton: Well, and this is their water management strategy, even to the extent that you deal with the new conservation storage at Roosevelt. Not Colorado River water, but surplus Salt River water. Their long-term design is let's continue to take our CAP water up to our entitlement, but let's not leave it in storage to spill next year in Roosevelt. Let's get it out of Roosevelt; let's put it in the ground; let's get some groundwater storage credits. To the extent that we can make direct delivery, let's go ahead and make those direct deliveries, but to the extent that it's not economical to do that, in other words, if our treatment plants are operating at full capacity, let's just put the surplus over and above treatment plant capacity in the ground. We'll have

those credits in the future, and under the Groundwater Management Act, anyplace in the active management area, we can put our recovery wells. So then let's site our recovery wells within the active management area, but near the points of actual use so as to minimize the distribution system costs, and possibly even the treatment costs.

Generally, the level of treatment is significantly less for groundwater than it would be for surface water. So you want to locate your groundwater recovery wells in the areas that are of a good quality groundwater, because then you can put your straw in the good quality water, and recharge maybe in areas where the quality isn't so good. Might be high in salts or something like that.

*How groundwater recovery
might be managed*

Storey: The idea being that there's a filtration process occurring? I'm not quite following --

Morton: Well, no. Let's just say that you've got an area of relatively higher quality water, low salinity, let's say, groundwater. It's already there. It's just sitting there in the ground. You haven't tapped it yet. Thirty years from now you decide, well, there's a whole bunch of people living here now, they've been drinking CAP water all these years, but now our ability to deliver them CAP water is curtailed to some extent. We need to give them a little extra water. Well, let's take it out of here. Let's not go down along the channel where we've actually recharged the water. That's probably more saline. There's the potential for contamination. There've been a lot of hazardous materials inadvertently dumped along the river channel. There's been landfills that have been constructed and then abandoned or closed, and

gone through a landfill closing, but in fact there's some leachate that's coming out of those landfills that's adversely affecting the groundwater. The only reason to go down there, put the recovery well in there, even though that would be the direct flow line for water that would be percolating, there's no use putting it there, then having to treat it, then pump it up hill, when under state law, I can just put my well uphill at this location where this higher quality groundwater is, and I'm pumping out the same credit that I put down here in the river channel. Better deal all the way around. Maybe I have to pump it as far to get it to the surface of the land, but I don't have to pump the treated water up to those houses. I've got my wellhead right there in the neighborhood, so to speak. I can inject it right into the mains so I don't have to build a main pipeline system to serve that land or those houses up there. I've got a better quality water, and my treatment plant costs are probably less, even if I have to treat it. As groundwater, maybe I don't have to treat it. Maybe I just need to put a little disinfectant in it. I don't have to go through any treatment process, other than disinfectant, a little chlorine or whatever.

So I think the way that the state law is set up with regard to the active management area looking at the whole basin as a whole, rather than the discrete increments that people are recharging gives some advantage to the newer developing communities that are spreading out beyond the central part of the metropolitan area.

Storey: One of the things that I presume that was going on is you have to be able to move the water through the system. And, I'm wondering when the control system was put together and designed, and how it

was designed, and how much Reclamation was involved in it, and all of that kind of thing.

Morton:

Well, the control system, at least for the Granite Reef Aqueduct, was in-place and operational in the fall of '85, because we had the first delivery of water to Phoenix in the fall of '85, and that, the control room, and the control system, were kind of the crowning achievement of our delivery of water to Phoenix.

The press made a lot to do of the control room. Matter of fact, there was even an article and a photograph in the *New York Times*, for example, and the *Wall Street Journal* had one. So it was kind of something new and innovative. The Secretary was here, pressed the button with the governor, and all that kind of stuff. It was all show and not real, but the bottom line was that there was a lot of focus on the control center.

The district staff was minimal at that time, so I would have to say we were probably a hundred percent responsible for the design and implementation of the control system. Al Graves and a staff of about eight, I think, he had working for him at that time to actually develop the software and configure the hardware. There's two people, and they both work for the district, one fellow that just retired, and he's now working for the district, CAWCD, to develop a spec for a replacement computer system, Bill Phillips, and their water control operations manager, Tim Kacerek. They both worked for Reclamation during that 1980 to '85, when the control system was being designed and built. Everybody else, I think, has gone on to bigger and better things, or left Reclamation. Maybe that's bigger and better, too, when you leave Reclamation.

***CAP control system
construction***

Storey: Well, some people may think that.
What was unique about the system? What caused such a big flap?

Morton: Well, I think we've discussed earlier that it probably, like everything associated with CAP, there's no singular uniqueness --

END OF SIDE 1, TAPE 3. JULY 15, 1996.

BEGINNING OF SIDE 2, TAPE 3. JULY 15, 1996.

Morton: There are other projects that are bigger, or longer, or have a greater pump lift, whether you're talking about the California Aqueduct System, the Department of Water Resources system in California, whether you're talking about some of the systems that have been built by the Chinese, or built by the Saudis. We're not unique in that context, but I think it's a combination of factors, the length of 340 miles, the capacity at 3,000 second-feet. I mean, there are longer systems, but no larger systems in terms of capacity. Their are higher capacity systems, 14,000 cubic feet per second comes to mind on the California Aqueduct, somewhere there around San Luis Reservoir, I think, it runs about 14,000 cubic feet per second, we've only got 3,000. Obviously, the A.D. Edmondson Plant, pumping plant, I think that's got, what is it, 1,100 feet of lift, something like that, and Tehachapi's in California, but it's only 1,600 cubic feet per second. We got the Havasu Pumping Plant at 824 feet, but 3,000 cubic feet per second. So it's the combination of factors of length, capacity, velocity, just those combination of factors that really make CAP unique. Obviously, the California Aqueduct System, singularly more expensive, over \$5 billion. I don't think we'll get

The combination of length, capacity, velocity, and complete remote control make CAP's aqueduct control system unique

to \$5 billion. We might get to four, but we won't get to five on CAP.

The control system, the number of checks, the number of turnouts, the number of pumping plants, I don't think any one of those is unique or sets a record, but the combination of all of them, when you add them all up, control points, total number of control points probably exceeds any other remote control system in the world. I don't know that for a fact, but I'm guessing that that might be the case. So it's just the enormity of the entire undertaking that probably makes it something special, and the fact that it's all controlled remotely from one site. We operate 340 miles of canal from one site.

Storey: How did they do that?

Morton: I don't know. There's this fiber-optic cable that runs down the canal banks, and there's a microwave system that goes to each of the control structures, and there's a little computer in each control structure and check and turnout. There's a bigger computer at each of the pumping plants, and all the computers just talk to each other, and they've all got their own command structure, and their own pre-program if something goes wrong, if you lose communication. Each of them is preprogrammed to shut themselves down. So a lot of communication and a lot of computer control.

The rest of it, it's kind of like, in my initial exposure when I was a kid and even in my early days working for Reclamation, my experience on the Salt River Project is, if you wanted to open turnouts, you spun a wheel and raised the gate. Now you've got a little electric motor that starts up and raises the gate, and you've got a computer that

says "start the motor," and "stop the motor," and "reverse the motor." I'm not that cognizant on what goes into it, and how many commands, or how many pages of code it takes to make that work, but needless to say, there's a lot of integration between the communications and the computer to make it work.

Storey: Did I hear you saying that when you were young that you were working in irrigation?

Morton: Well, during my youth, I had the opportunity to work on a farm there just down the block from where I lived, on the Salt River Project in Mesa, and I've irrigated a few acres of alfalfa, and a few orange trees in my life now.

Assists in irrigation as a youth

Storey: Tell me about it. What was it like?

Morton: Never did figure out how to do siphon pipes, though. I always wondered how in the heck those guys -- how a good irrigator will throw siphon pipes, because they really know how to get those things started, and I never managed that.

Tell you what it was like. I think I was probably about fourteen years old, and the housing development I lived in was so situated that there was about sixty acres on the west side of the housing development, and about. . . . Well, let's see, it must have been a 160, and the housing probably took -- probably eighty over on the other side. The development took a quarter section, and just carved like twenty acres out of the middle of a quarter section farm. The original land owner lived up on the corner of what at that time was Power House Road. It's now called Stapley Drive and Main Street in Mesa. He had about twenty acres of orange trees right around his farm house, and he'd sold off this twenty-acre parcel, so he had

-- what, that would be forty He must have had about 120 acres that he put in field crops that he was still farming. This would have been 1955 or '56.

Storey: Field crops.

Morton: Yeah. Alfalfa, grain, wheat, barley, he put cotton in a time or two, but it was too small a property to really make a good crop of cotton, so he kind of just had somebody come in and custom combine his grain or his alfalfa for hay, and he'd just sell hay. He'd just sell it as hay.

I remember one year, after he cut his hay, he did have some sheep pastured out there, but I think that the neighbors there in the development complained too much. I think he rued the day that he sold that parcel for houses. But by 1960 the whole area had been urbanized, subdivisions all over the place, and I think he finally sold his farmstead out in about '65. But I think I was thirteen or fourteen years old. A kid always needed to make a little extra money.

I used to deliver newspapers. I had an afternoon newspaper route, *Phoenix Gazette* newspaper route. I'd pick them up there just across the street from his house up there at the corner of Main and Stapley in Mesa. I got to know him, and he'd see me out there every day folding newspapers, and he'd come over and chat. One day he asked me -- he'd lost his hired man or something.

He said, "Give me a hand irrigating?"

I said, "Sure."

So I went out that summer, oh, I think, three, four nights a week, and helped the guy that owned the land, the farmer there, to irrigate his

crops. I did learn a little bit about irrigation at that time.

Storey: What kind of irrigation was it?

Morton: It was just surface irrigation. It was flood irrigation.

Storey: Flood irrigation?

Morton: Yeah.

Storey: A lot of turnouts? A few turnouts?

Morton: I think he had his border set up on about twenty acres or so, so we probably had ten -- ten or twelve -- something like that. It doesn't seem like many now. Probably was then. Then after forty years your memory kind of dims, but I think we probably had a dozen sets we did.

Storey: Always do this at night?

Morton: Yeah, he was always big on -- we'd start about six, and it'd run about six hours, so I think we used to work from like six p.m. to six a.m., and I think he'd get his run of water, he'd get two runs of water. One would come in along Main, and another one would come in along Stapley. Of course, the Salt River Project ditch riders would actually turn out from the lateral to the farm fields. They'd set the turnouts, then they'd disappear. Then they'd come back after you had six hours worth of water.

It wasn't a real problem to turn water out. The problem was finding the low spot in the dark before the water all leaked out. There was always someplace. I'm not sure what kind of rodents we had. Gophers, probably, I imagine. There's

always someplace where the gophers had dug a hole, and the water would seep out through the gopher hole. You have to walk around with a long shovel and a flashlight, and try and --

Storey: Seep out through what?

Morton: Through the loose dirt that the gophers would dig it up, and they'd move from one field to the next field, and the water would come in, and you didn't want to irrigate that field. You were trying to get the basin flooded in the one field that you were working, and so you had to walk around and make sure that there weren't any low spots in the borders, or that the gopher holes, for whatever reason, that the water would go where you didn't want it to go.

Storey: Yeah. Did you irrigate once a week, or how did that work? Do you remember?

Morton: Oh, no. I think we probably rotated about every ten days during the summer, it seems to me, ten days to two weeks, depending on how hot it had been. We'd do two fields a night, so you'd work three or four nights, then you'd be off five nights, or something like that, then you'd work three or four nights again. Something like that, it seems to me. It was fairly irregular. I do recall that. He couldn't afford a full-time person to help him, because the work, it was cyclic, but there was a long down period where you weren't irrigating. So it was like if we were doing two a night and there were twelve, that'd been six nights. There must not have been twelve. Must have been only ten. So we had about ten, twenty-acre sets that we were doing, and so that was like five nights. If the

water was coming on a ten-day cycle, then there's five nights on and five nights off.

Storey: Do you think he was on a cycle?

Morton: Yeah, I think. That's the way Salt River usually operates is that they get everybody involved in a cycle. In other words, they'll dry up their laterals overnight if they can.

Of course, that minimizes the project work force as well. They can move from area to area. They don't have to be dedicated to one area and then just operate in that relatively small area. They serve water to their service area with fewer number of ditch riders.

Storey: How do you get the water to quit leaking through the gopher hole?

Morton: You just take a shovel and dig it down and compact it back up.

Storey: Okay. That's interesting.

Morton: You've got to get down and seal it up. There'll be either loose soil, or even a void there, where the gopher nest or hole is. So you've got to get down there and dig down, and cause the soil to collapse into the hole, and then stomp on it, fill it back in.

Storey: So it was basically an all-night job.

Morton: Yeah.

Storey: Four or five days in a row.

Morton: Yeah.

Storey: Okay. That's interesting.

Morton: Then you'd get, like I said, probably five days off. I did that, oh, I think, just about the whole summer, I think, probably three months for summer -- probably the summer I was thirteen, now that I think about it. The summer I was fourteen, I think I was in Anaheim, so I guess it was the summer I was thirteen, would have been '55.

Storey: So you did it one year.

Morton: Yeah, for one summer.

Storey: But you didn't use siphons. Or you didn't get the hang of siphons.

Morton: He used the siphons in the orchard, and I think I wandered around and helped him move trash and stuff like that in the orchards, but I didn't really experiment with the siphon pipes. I think the siphons were kind of new then; they had just come out.

Storey: We're talking these little aluminum tubes about two inches in diameter, right?

Morton: Yeah. Right. Yeah. And what they do is they'll just fill up a head ditch with water, maybe it won't even have any velocity. It's just full, and then they stick one hand on the end of the pipe, and they fill up the whole pipe, then they do like that and throw it over, and just gets it started just like any siphon. Too big to try and suck [unclear].

Storey: To suck through it.

Morton: But those guys can just do like that a couple of times with their hand, and --

Storey: Build up some suction in there.

Morton: Some vacuum in there, and that thing runs, and it runs a good flow of water. I've tried it a time or two, and I never did get the hang of it.

Storey: Let's see. Moving back to the early eighties. Would that be about the time that Reclamation moved into these offices here out on the canal, on North Seventh Street?

Morton: Yeah, we moved out here in the summer of '84, and primarily the rationale for moving was we needed the building to install the control system. So we'd done our specification work; we knew what we were going to build; we were beginning to arrange for the construction of the components, i.e., the modcomp computers; and we needed to complete the building to put the computers in, as well as things like microwave antennas, and connections for control cabinets, and electrical cabinets for connecting the fiber-optic cables along the canal bank. We needed office space, but we could rent office space just about any place around. We really weren't into serious O&M. As a matter of fact, building two here on Seventh Street, which is the O&M complex, the motor vehicle maintenance shop, the pump motor maintenance shop, the warehouse, etc., wasn't actually completed until about a year and a half after we moved out here.

Building one, which is principally the control center and administrative offices, that was the first thing that was built. Like I said, the timing for completion of the control center, of building one, was predicated on when we needed access to a building so we could bring the computers in, and assemble them, and hook everything together. The summer of '84 was the

*Reclamation's offices
move to north Seventh
Street in 1984*

*Reclamation moved to
north Seventh Street in
order to have the new
control center for the aque-
duct system*

timing dictated by that part of the construction sequence.

Storey: Where did we move from?

Morton: We moved from what is now the Bank One Center, which at that time was Valley Bank Center, which was a thirty-nine or forty-story building in central Phoenix at Van Buren and Central Avenue.

Reclamation offices in the Valley Bank Building at Van Buren and Central from 1974 to 1984

Storey: I don't think we ever moved into that building -- I mean you and I. I don't think we ever did. When was it that we did -- I mean, intellectually we didn't -- we went through the first two offices that you worked in, I think. Was the Valley Bank Building the third building?

Morton: Yeah, I think that was about '74, right after it had been completed. There was a substantial surplus of office space in the downtown Phoenix area, and GSA went out looking to lease some space for a number of client agencies, primarily because the client agencies were being asked to leave the Federal Building. The Federal Building was now converting from a multi-agency building to the U.S. Federal Court system, so the judges were asking GSA, as other tenants' leases ran out, they were asking GSA to vacate the building, and I believe that the old Federal Courts Building has now been completely vacated. It's all in the court system -- Justice Department and the court system is all that's in that building today.

But in that early '70 time period, Valley National Bank had just completed building of their new home office building, and GSA went out for bids, and they got a good bid. It was a five-year lease with a five-year option. I think

they had signed the contract in January of '74, I'm going to say, because I know that when we came up to move out to Seventh Street, north Seventh Street to this location in '84, GSA kind of left us high and dry in the Valley Bank Building, because by that time the price of rented office space in Phoenix had gone out of sight, and space was at a premium.

The Valley Bank was looking to reclaim all this space that they had rented to the government in the early years, so they could get a substantially greater revenue from their office space.

The contracts were up, and GSA vacated all the government people except Reclamation, and our excuse was, "Well, we're building this building up on North Seventh Street, and we'll move this summer, but you've got to take care of us."

GSA said, "Well, we'll give you the authority to negotiate independently with Valley Bank."

So I know we paid a premium to stay at the Valley Bank for that six or seven months that we needed to have some office space, otherwise we would have been out on the street so to speak, because the Seventh Street Complex was not completed, and the Valley Bank management -- well, it wasn't the bank as much -- there was a management firm that was leasing the office space, and we paid market rate for six or seven months until we vacated this place that GSA had left us in.

Storey: I would guess that was that period when we were in the Valley Bank Building was a period of high construction activity, design activity. Did we have other space in Phoenix also?

Morton: At that time the Western Area Power Administration had not yet separated from Reclamation. So the Parker-Davis office at Forty-Third Avenue, just south of Van Buren, was still in operation, and we had headquartered some of our field construction people at Parker-Davis. '74 or shortly thereafter, I think it was in '74 that we located our Reach 11 construction office in trailers at Bell and Scottsdale Road. For the construction, there's about ten miles, twelve miles of dike construction in Reach 11 from 108th Street on the east, west to Cave Creek Road, and that was constructed out of an office site, a trailer site, at Bell and Scottsdale Road. So we had that site. We had the temporary construction site at Havasu intake channel. They were operating out of trailers there as well. I think those were our four offices -- Forty-Third Avenue, Scottsdale and Bell, Parker, and the Valley Bank.

Construction office for Reach 11 was located at Bell and Scottsdale Boulevard

Storey: So how much space did we occupy in the Valley Bank, do you recall?

Morton: Oh. Well, we had the whole of the twenty-second floor, and we had about half of the twenty-first floor, and we had a little bit on the twenty-third floor with BLM. It wasn't much, maybe three small offices on the twenty-third floor, it seems to me. And then we had some warehousing and loading dock -- loading kind of capability -- in the basement. That was maybe 1,500, 2,000 square feet in the basement, or something like that.

Storey: How many people, do you remember?

Morton: I think we were probably up to about 200 at that time, but probably sixty or so were located at the

remote site. So we probably had 130, 140 people in the Valley Bank Building.

Storey: So I suppose, when we moved up here on North Seventh Street, that must have pretty close to doubled your commute.

Morton: Yeah.

Storey: Essentially that's southeast.

Morton: And then some. Yeah. I think it was about twelve miles from my house to downtown. Of course, you had to pay for parking, and you had -- the parking was several blocks' distance from the office -- three to five blocks, depending on where you were parked, what time you got there, and where you could park. We moved out here. Instead of driving twelve miles I drove thirty-two to thirty-six miles, depending on the route. If I stayed entirely on the freeway, it would be like thirty-six miles, because you have to go farther to the west than you need to. If you take surface streets, well, the commute timing-wise was longer. It was only about thirty-two miles on surface streets. So the distance and the commute time was longer to get to the new site, but then you had the benefits of covered parking.

How Morton's commute changed when Reclamation moved to north Seventh Street

Storey: Free parking.

Morton: Yeah, free covered parking, and maybe 100 feet to the office, instead of four or five city blocks.

By that time, like I said, as far as the Valley Bank and their tenants were concerned, a bunch of Federal employees were like second-class citizens. This was now uptown. When the Valley Bank first opened that building, it was a very casual atmosphere, few if any people wore

suits. It's interesting that we had the Secret Service and the Alcohol, Tobacco and Firearms was also in that building with us. So a lot of those guys would be undercover operatives, and they'd have scruffy beards and long hair, and they looked really out of place in a bank building, so you knew immediately that they were Federal law enforcement, instead of some deadbeat.

By the time we left, since GSA had evacuated all the other federal people, we were still arriving in work clothes, and a lot of the field hands were coming in for meetings or whatnot, and they had dusty boots and Levis, and carrying a hardhat or a lunch pail. Everybody knew those were Bureau of Reclamation employees, because by that time, most of the clientele, most of the lessees in the building, were lawyers or accountants or what have you, and they were all in suits and ties, and at least coats. So you could readily identify with the Reclamation employee in 1984.

Storey: What else should we be talking about from your period [of working with the non-Indian distribution systems] --

END OF SIDE 2, TAPE 3. JULY 15, 1996.

BEGINNING OF SIDE 1, TAPE 4. JULY 15, 1996.

Storey: [This is tape 4 of] Brit Storey with Larry Morton on July 15, 1996.

Morton: That's a difficult question. Nothing really unique or unusual comes to mind.

Storey: No other interesting stories about negotiations with the water districts.

Morton: Just having to sit there and have Bob Edmiston blow smoke in my face.

Storey: Who was Bob Edmiston?

Morton: Bob Edmiston was a consultant, president of a firm known as --

Storey: Bookman-Edmiston.

Morton: -- Bookman-Edmiston. He and his chief designer were both chain smokers, and this issue of the Santa Rosa Canal, somehow when we got to negotiate that, I was sitting between the two of those guys, and the geologists and some of the other engineering staff from both the government and Bookman-Edmiston were sitting across the table, and I was just trapped between the two of them for about six hours one day, and they were smoking one cigarette right after the other. I felt like I'd been through a train or something. That experience just was one --

Storey: This would have been the early eighties.

Morton: Yeah.

Storey: Of course, nowadays it would almost impossible to find a situation like that.

Morton: Oh, yeah. Yeah. You couldn't find one today.

I think that we had gotten to the point where we had to have all the meetings over at his offices, because I think the Federal government was taking smoking into consideration as a health hazard, so we kind of tried to limit smoking in our office, in the conference rooms. Didn't have that problem at his private offices, so he could smoke

all he wanted to. So he called all the meetings at his place.

Storey: What did you do after that?

Morton: After the distribution system? Oh, the distribution system was still alive and functioning. Like I said, we spent about \$240 million worth of Federal money, and another \$60-plus million worth of district funds. It's over \$300 million total program.

But several things were happening at that time. Mr. Plummer the Regional Director was stepping down. He had been very instrumental in talking me into applying for the job in the first place. He was retiring and going into private practice. I think he did that late in '84 or early '85.

The assistant Project Manager, Dess Chappellear retired in January of '85. Ed Hallenbeck was the Project Manager, but Ed had interests in becoming the Regional Director. When Dess retired, of course, advertised his job as a vacancy, and I applied for it. I think I was selected for the job after a couple of months of interviews and filling out KSAs, and just actively applying for the job. I know that there were a number of other applicants. It was considered to be a real good job within Reclamation. At least I always thought it was. But Ed selected me effective March 31, I believe it was, 1985, after Dess had retired.

Then he spent some time in Washington, and shortly after that, he took a couple of weeks off on leave, and then he went to Boulder City, to become the Acting Regional Director, the first part of May of '85. I had this new job, and this new office, and I didn't have a boss. I was supposed to be the assistant area manager, and Ed

*Dess Chappellear,
Assistant Project Manager,
retires in 1985*

*Morton applies for
Assistant Project Manager
position*

*Morton becomes acting
Project Manager for over
one year*

basically said, "Well, if you got a problem, give me a call," although he wasn't ever expecting a call, is what people told me. The rumor had it, in talking to people in Boulder City, "If Morton calls, it's a real emergency, and find me wherever I am."

But for various reasons, if I recall correctly, Mr. Duvall was not in place yet as the Commissioner of Reclamation. Mr. Ziglar was either in the process of replacing Bob Broadbent, or Bob was still there. Bob -- who was the Acting Commissioner? Bob Olson.

*Why Morton was acting
Project Manager for so
long*

Storey: Well, there were two, Bob Olson and --

Morton: And Cliff Barrett. Bob Olson was sitting back in Washington. Of course, Olson and Hallenbeck had basically grown up together. They had both come out of the Dakotas together, and both had worked in Boulder City together, so Bob Olson and Ed Hallenbeck were good friends from way back. Ed was acquainted with Broadbent, because Broadbent was from Boulder City. Ed had been in Boulder City for several years. Ziglar and Hallenbeck hit it off, but before they made any permanent appointments to the Regional Director's slot in Boulder City, they wanted to wait, I guess, until Dale Duvall had been confirmed as Commissioner. So Ed was Acting from May of '85 until, oh, I think it was probably maybe March of '86.

*Ed Hallenbeck is acting
Regional Director*

I came on board as the Assistant Project Manager in April -- first of April -- thirty-first of March, something like that -- and really, in terms of working in that relationship with Ed, and I'd worked with Ed as a Division Chief under his supervision, and as a distribution systems manager under his supervision for the preceding five years, but as a Project Manager, Assistant Project

Manager, my working relationship on a day-to-day basis with Ed was probably about a week. Then he was either in Washington or in Boulder City, and pretty much left me to my devices during that period of time, that ten or eleven months that he was in Boulder City as the Acting Regional Director. He just, for some reason, left the operation, the day-to-day operation of Phoenix, Arizona Projects Office in my hands.

I don't think I've ever forgiven Ed for not letting me work with him on a day-to-day basis, because I know that as a Division Chief, or an office manager under his supervision, I can't say that I enjoyed anything more than the time I spent working for Ed, but you didn't see him often enough. You had your own responsibilities to deal with, and you'd see him once a week, or Ed was good for managing by walking around, so he'd drop in and see the divisions once in a while. But I was really looking forward to being his assistant and having the opportunity to work with him, and deal with him on any number of issues on a day-to-day basis, and the dang guy got up and left on me. If I'd know that, I probably wouldn't have applied for the job. But by that time it was too late.

So there we were. We had just moved into these new facilities out here on Seventh Street. We'd been here less than a year at that time. We were opening up our building two, our maintenance complex, and we were going to deliver water to Phoenix. I was the guy, so to speak, because there was no Project Manager here to run the show. So when it came time to celebrate the first delivery of water to Phoenix, I got to be the spokesperson generally. I spent a lot of time talking to reporters, and got my picture in *Newsweek* and *New York Times*. It was a very

First water to Phoenix ceremonies were during Morton's tenure as acting Project Manager

enjoyable time period. From a construction standpoint, we were really rolling. We were 500 people strong. We had a \$200 million budget. We had just negotiated a cost-sharing agreement with the people -- or were about to negotiate a cost-sharing agreement with the people from Six Valley Cities, the flood control district. We had a lot of contractors, a lot of dirt to move. It was a good time, mid-eighties.

Storey: Before we go on, tell me what happened to your grade structure over the years as you went from Division Chief to Coordinator to Assistant Project Manager.

Morton: Well, let's see. It's kind of a progression. As the grade goes up, the time in grade gets longer. I started as a three, in 1962, and I was a three for a year, I was a four for a year, I was a five for a year. Wasn't quite a year I was a five, because I graduated.

How Morton's grade structure changed over the years

Storey: Then you got to be a seven.

Morton: When I graduated I got to be a seven. So between April of '62 and January of '65 I went from a three to a four to a five to a seven. Then kind of a quirky thing, when you're on engineering rotation training program, since it's an accelerated program, they give you two months for credit for every month. So I came off the rotation program, I think, in November of '65, because they give you two months credit for each month of service, I made nine. I was a GS-9 before January of '66. Then I was a nine for a year and I became an eleven. Well, that's kind of the journeyman grade. So I was an eleven for several years, like '70 or '71 I made twelve. It would have been '66 that I was an eleven. '60, '70, '71 I was a twelve. '77 after

the Water Projects [Review] -- when I became the Division Chief. When I became the Chief of the Environmental Division in the fall of '67, I was a thirteen.

Storey: '67?

Morton: '77.

Storey: '77.

Morton: Yeah. Then in '85 I became a fourteen.

Storey: As the Assistant Project Manager.

Morton: Right. Eight years as a thirteen, something like that. Now going on eleven as a fourteen -- over eleven.

Storey: Really, for the first almost year, more than a year, I guess, you were the Acting Project Manager.

Morton: Just about. Bob Towles finally showed up in May. Yeah, it was over a year. He showed up in May of '85. I was the Acting Project Manager for thirteen months.

Storey: How did you find your responsibilities and your outlook changed when you moved into the Assistant Project Manager's office?

Morton: Well, what's the word, patriarch. I was a relatively young person, I thought at that time. What was I, forty-three? Yeah, I was only forty-three years old. But it's kind of like I've got to take care of all these people. Before I had a very narrow focus, it was to get a distribution system built, or protect the environment and make sure the

*Changes in perspective
cause by becoming
Assistant Project Manager*

environment is considered in all decisions relative to what we do, or even before that, to develop a good quality operating model, or do a good planning report, but now you had -- you didn't have a narrow focus. You had a very broad overarching focus. You had to be sensitive to the politics of the situation. You had to deal with the financial aspects of the whole office. You had 500 people who, on any given day, would drop in with their complaint, or concern, or issue. So it was a whole new mind-set.

A good example would be, at that time I had a number of counterparts that I worked with. Before I became Assistant Project Manager I was in a carpool. We'd go out and have beer, go out and play racquetball. All of a sudden that all ended. I didn't feel comfortable in a carpool with other division chiefs who were now subordinate to me. You couldn't talk shop with them, because it probably was inappropriate to talk shop with them in the carpool. Didn't go out and play racquetball. Of course, it probably also had something to do with a back injury that I'd sustained, but the combination at that same period of time, I found myself not going out for pizza and beer with some of my former colleagues. Just a whole different set of circumstances there. I don't know.

It's a big change, but it was one I kind of enjoyed. There was the big picture to have to deal with. There was always something on the table. There was always a fire to fight someplace. It was a lot of fun.

Storey: So you didn't have a lot of trouble making the change?

Morton: Well, I hope not. They tell me I didn't.

Storey: I meant personally.

Morton: Personally, no, I didn't. Personally, it was not a problem. I suspect that there were a lot of people that thought that I was a problem. I enjoyed it. The travel went up quite a little bit. I mean, I was now involved in a lot of broad Reclamation types of programs, management conferences, asked to serve on various committees, found myself a lot of additional time spent on media relations and dealing with politicians, and dealing with congressional staff people. Just a whole different ball game.

Storey: Tell me about the politicians. Any in particular?

Politicians dealt with

Morton: Well, none that really stands out. The delegation from the state of Arizona, at that time, I think, we had four congressmen. We had four congressmen and, of course, the two senators. Jay Rhodes, John Rhodes' son, they were from Mesa. I'd known Jay outside of Reclamation. He had also served on CAWCD board of directors for a couple of years before he was elected to Congress. So I was kind of on a first name basis, I guess, with Jay Rhodes. He was probably the first person I would go to or talk to on an issue. He's the one that would seek me out from time to time, like how things are going.

He'd call up, say, "Can you come down to the airport? We're coming through town. Can you give me a half-hour, an hour briefing on what's going on here with CAP, or what's happening with Orme, or what's happening with Plan Six.

So I got to know Jay fairly well. He had a real personal interest in CAP, I think, primarily because of his father's activities during [the] authorization time period. John Rhodes, Sr., had really directed, was a point man, for Senator

Hayden on the authorization of CAP back in the sixties. Then Jay had served on CAWCD's board, so he was a major supporter.

Of course, Moe Udall. I didn't work with Moe a lot personally. I worked with members of his staff, but not specifically with Moe. The Tucson interests kind of went to Jim Kolbe at that time rather than Moe. I don't know why, but Moe chaired the House Interior Committee at that time. But when Tucson wanted something they'd go to Kolbe, so I had some contact with Jim Kolbe. On a personal basis I knew Jim pretty well.

Bob Stump was the other congressional from Arizona house, and didn't know Bob very well. I dealt primarily with his staff.

Mike Jackson from Moe's staff, he's still back in Washington. He's moved over and works now for Senator McCain, in the Senate Select Committee on Indian Affairs. So Mike's still a staffer there.

Most of the other staffers like, as is the case, they move on. There's a lot of transition. Mike's been one of the long-time staff members I've had contact with, still do from time to time.

Senate side who'd we have. We had McCain had just vacated his House seat, I guess, in the Senate, or maybe he was still in the House. I can't remember.

Goldwater -- mid-eighties. Goldwater was probably just in his last year or so, I guess. So I guess McCain took Goldwater's seat, so that's how that worked.

Who'd we have on the other side? I can't even remember now. Who was the senator was. Must not have made a big impression.

Storey: He didn't come screaming into your office probably.

Morton: I guess not.

Storey: Tell me more about the interview process that you went through, if you would. Were there a lot of interviews? What did they seem to be looking at, looking for, and who was doing it?

*Interviewing for the
position of Assistant
Project Manager*

Morton: Well, I had two formal interviews. The first one, I think, was more of a practice for the real one. This is a personal observation, but at that time the administrative officer was Smith. What was her first name? I can't remember her first name.

Storey: That can be looked up.

Morton: Yeah. Anyhow, she was not only administrative officer, but she was kind of Ed Hallenbeck's Chief of Staff. So she did an interview with me that was probably the worst interview I have ever gone through. She asked theoretical, hypothetical questions about, "What would you do if an employee did this?" and "What would you do if a congressional did that?" Linda Smith. Linda, she just grilled me up one side and down the other. I really couldn't judge, to tell you, I was so uptight and overwrought by that interview process, that I couldn't tell you whether I did good or bad. But her parting shot with me was, "You'll do fine." Then I had an interview with Ed, and it was nothing like the interview with Linda. Ed's comments were more, "How's the family? You're going to have long hours, do you think you can handle longer hours? You're going to have more travel, what do you think about travel? Are you willing to work on Bureauwide committees? What do you think of Washington."

Basically, I told him I wasn't interested in going to Washington. Whereas Linda, she got

right down to the bottom line. "Why didn't you take that opportunity to go on the department management program when it was offered to you a couple of years back? Why didn't you do it this way? How would you discipline an employee if they did this or that or the other?"

Oh, man, it was a real nerve wracking experience with Linda. With Ed Hallenbeck it was kind of like sitting down with your beloved grandparent or something, and having an afternoon chat. It was significantly more cordial than any interview that I've ever had up until that time.

Storey: Interesting. But were these close together or spaced out?

Morton: About a week apart.

Storey: Then it took them, I believe you said, several months.

Morton: No. It was a pretty fast -- I think Dess retired like the fifteenth of January. The vacancy notice was on the street at the time he retired. It probably closed early February. There were enough applications that I know that the position went through some kind of rating. That took a little while. I think it was a case of getting a group together, a promotion panel together to actually evaluate the applications and make recommendations on the best qualified. The interviews were probably -- Linda Smith probably did hers the first week in March, and Ed did one a week later, and by the end of March, the selection had already been made and announced. Ed didn't waste any time. He was a pretty decisive individual.

Ed's on the other hand, his appointment as a Regional Director just drug on and on and on,

until the situation with the Commissioner had been clarified. I think I went back to Washington with Ed. Bob Olson was acting when we were back there. Joe Marcotte was in from Billings as Assistant Commissioner for a couple of weeks there. Terry -- help me on this.

Appointment of the regional director took a long time

Storey: Terry Lynott.

Morton: Terry Lynott was also sitting back there waiting for Joe to leave. Ed hauled me in there, and I can't even remember what we were back there for. It had something to do with CAP, obviously, looking for more money, probably. But Terry was sitting in one office, and Bob Olson was sitting across the hall in the Commissioner's office, and Joe was sitting in another side room there, in the Commissioner's suite. We all sat down in Joe's office and just talked about old times with Ed for about an hour. Then he got up and said, "Well, I've got to go brief the Commissioner." They disappeared.

Well, later on I found out that Duvall was staying in a hotel and wasn't allowed in the Interior building. Ed was back there to brief him, and probably sell him on becoming the next RD in the Lower Colorado Region.

END OF SIDE 1, TAPE 4. JULY 15, 1996.

BEGINNING OF SIDE 2, TAPE 4. JULY 15, 1996.

Storey: Ed Hallenbeck came back?

Morton: Ed Hallenbeck came back from the hotel after about three hours and said, "Let's go catch the plane."

So we headed back out the door.

I asked him, "Well, how did things go?"

He says, "Went really good."

So that was about the bottom line. I'm pretty sure at that one session he was interviewing for the RD's job. It was kind of cold and wet, so it had to be -- it couldn't have been -- might have been May. It wasn't in the heat of summer. It might have been early May that that took place.

Up until that time, when Ed went into Boulder City, and I'd ask him, "How long you going to be?"

He said, "Well, I think Roy Gear and I are going to rotate this acting," and maybe John Brown were going to rotate the acting for a month on and a month off, or two months off whichever it'll be. "So I'll be back to Phoenix, no problem."

Well, we were back in D.C., and shortly thereafter, and after he assured me he'd be back for a couple of months, and he was kind of the permanent Acting Regional Director from that time on. So I think he kind of went back to interview, and I've always felt that way, at least, that he'd gone back to interview with Duvall, and possibly Ziglar and "passed." And I think from that point on he was Acting Regional Director, and just waiting for Duvall to get confirmed and take care of any other organizational needs they needed to do.

Storey: Somebody once referred to "Hallenbeck's air force." Do you have any insights into that?

"Hallenbeck's air force"

Morton: Oh, yeah. Well, we had a few helicopters here at the time. Before we moved out here, we had acquired one helicopter. Actually, Ed's helicopter activities go back a long ways, because, I think, even in the early seventies, he was instrumental in getting the first helicopter. I'm not even sure if the Office of Aircraft Services within the Department, was in place yet. So I'm not sure if he worked by

Using helicopters on CAP

the aircraft for the Parker-Davis Project, or that he worked through OAS to get the helicopter. But for transmission line patrol, the helicopter is very efficient, there's no doubt about that.

He was instrumental in getting Parker-Davis a helicopter in like '70 or '71, when he was the Assistant Project Manager at Parker-Davis. From that time on, Ed had a great interest in insuring that the best technology was being used in the most efficient manner. So I think at one time Parker-Davis, before they became Western Area Power Administration, had two helicopters and, I think, shortly thereafter they acquired the third.

Well, for administrative needs and ferrying people back and forth, the helicopter worked wonders. I mean, we were [spread] from the Colorado River, [for over] 340 miles to south of Tucson, where we had people. Had people up at Roosevelt, Stewart Mountain, all along the canal.

I think it was probably '84 that we got our first helicopter here in Reclamation, and by the time Ed became Regional Director, I think -- maybe it was even '83, because we had them, in anticipation of this building. We had a helicopter hangar and a landing pad integrated into it. The design for maintenance patrol, security patrol, on both the canal and the CAP transmission line, was going to be all by helicopter. We were not going to have any ditch riders, anybody in a pickup truck driving down the canal bank. We were going to do it all by helicopter.

We're finding that maybe in terms of security patrol, that's fine, but for a day-to-day operation, it doesn't work that well. You can't carry enough equipment, and it's pretty expensive. It's really cheaper to have minimal, I'd say minimal surface patrol on the ground. But for

emergencies, a helicopter is really a godsend, I think. CAWCD doesn't agree with that.

Now, we're down to one helicopter. But at one time we had three helicopters and one fixed-wing. So that was Ed's "air force," which was three helicopters: two Bells -- a Bell jet ranger, a Bell long ranger, a Bocal [phonetic], and a Cessna fixed-wing, 172. Put a lot of miles on it.

We're down to one helicopter now. CAWCD uses it about 200 hours a year. Actually, the chief pilot and the helicopter are up at Mesa Verde National Park for the summer, they're doing fire patrol for the National Park Service all summer, through Office of Aircraft Services. It's more cost effective for us to rent a helicopter if CAWCD wants it. Of course, in terms of our activities here now, our construction efforts are down to such a low level today, we don't have a need for a helicopter in our construction activities. We do a little photo documentation still. That's just about done. We'll rent a helicopter for that.

OAS rental rates are \$560 an hour. They're expensive, but they're competitive. It's cost effective in some applications, but from a day-to-day operation it's not really cost effective.

The concept of having two helicopters to transfer to CAWCD as permanent works, didn't materialize. CAWCD developed their own maintenance strategy, and concluded that with the exception of security patrols, you're flying too fast, you can't see enough. Better off on the ground to really visualize what's going on on the canal.

So I think we do a security patrol every weekend, either on a Saturday or a Sunday. One week we'll go south from Phoenix for the district, and the next week we'll go west to the river. So on an every-other-week cycle you go to the river, and every-other-week cycle you go to Tucson. It's

just one trip. So there's maybe four or five hours a week. That'd be about 200 hours or so. That's all we get. It's not like we're out flying every week or every day.

Storey: Yeah. Okay. Well, we've used up four hours today. I'd like to ask you whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Morton: Sure thing.

Storey: Good. Thank you.

END OF SIDE 2, TAPE 4. JULY 15, 1996.
BEGIN SIDE 1, TAPE 1. JULY 16, 1996.

Storey: This is Brit Allan Storey, Senior Historian at the Bureau of Reclamation, interviewing Larry Morgan, the Assistant Area Manager of the Phoenix Area Office, in his offices in Phoenix, Arizona, on July the 16th, 1996, at about nine o'clock in the morning. This is tape one.

Yesterday we were talking about your becoming the Assistant Project Manager and being thrown into the lake, as it were, without water wings, and I was wondering if you had any issues that developed with the Project Construction Engineer.

Relationships between Project Manager and Construction Engineer had been worked out by the time Morton became acting Project Manager

Morton: Not really, because I think we had a pretty good relationship. Don Anderson was the Project Construction Engineer at that time, and during the little more than three years that I was involved in the Distribution Systems Program that preceded my assignment as Assistant Project Manager, I'd had to work real closely with Don and his immediate staff, Wayne Anderson and Bruce

Hutchison, who was the Chief of the Design Division here. And as a result, I think I established a real good working relationship over that three-year time period.

The Construction Engineer had his issues and, of course, the Project Manager had his issues, and they were consistent. They were timeline schedules, funding, everything by that time had been pretty well established, and the issues related to servicing the Construction Engineer and providing staff support for the Construction Engineer in the administrative area, personnel area, safety, etc., had pretty well been established by that time. I think the Construction Engineer was very comfortable with that relationship. So it was a good relationship that I had with Don.

Storey: That was not a traditional Reclamation way of doing business, however, having an Area Manager who supervised the Project Construction Engineer.

Having a Project Manager who supervised the Construction Engineer was not normal in Reclamation

Morton: No.

Storey: Had it always been smooth like that?

Morton: No, no. It was a difficult process to really get agreement between the Project Manager and the Construction Engineer. In the mid-seventies, '73, '74, '75, in that era, certainly after Andy Dolyniuk came on board as the Project Construction Engineer, there was certainly a movement to separate the construction functions and perhaps even establish a totally separate office from the Area Manager concept [then known as a Project Manager], leaving the Area Manager or the Project Manager only with planning and O&M functions and establishing an Office of the Project

Early tensions between the Project Manager and Construction Engineer on CAP

Construction Engineer or something similar to that.

Traditionally, I think that where a Project Construction Engineer has gone in to establish at a site-specific location, say a dam site, traditionally, the Construction Engineer ran the entire operation. All the support functions, administrative support, personnel support, safety, acquisitions, etc., always reported to the Construction Engineer. I think that up until that time there was a general understanding or belief that on CAP, the Construction Engineer would call the shots.

However, when the Construction Engineer was assigned to the Central Arizona Project, there was already an infrastructure in place. The Project Manager at that time was Cliff Pugh, and he was of equal grade with the Construction Engineer and already had an ongoing program in the general investigations and O&M area. So then it became a political battle, a tussle, I think, between Andy and Cliff on exactly how CAP was going to be organized, and that went on for a couple of years. I don't think it was finally resolved until Cliff retired, until after Cliff retired, and I think that there was still some uncertainty as to whether once the appropriation level had increased and once the thrust of the organization was predominately construction, whether we were going to segregate into two offices or not. I don't really believe that was resolved until either right about the time Cliff retired or immediately after Cliff's retirement in '76, I believe it was.

I think that had CAP been adequately funded from shortly after authorization, say '71 or '72, the Construction Engineer would have had a separate office and would have taken or established his own support cadre. But during the early seventies, '71 through '75, the funding levels

for construction were not consistent with a full-blown program, and we really didn't have the luxury to duplicate support staff. We couldn't have a support staff supporting the area office functions and a support staff supporting the construction office. We had to double up on support. That was the only way we could afford to keep the program alive. So there was a lot of controversy ongoing between the Construction Engineer and the Area Manager up until the time, I think, that Mr. Pugh retired.

Then for some reason after Cliff left and Dick Shunick was appointed the Project Manager, that conflict seemed to go away and the decision was made shortly, it seems to me, to the best of my recollection, was made shortly after Dick was appointed that there would only be one office, that there was not going to be the establishment of a Project Construction Engineer and a separate office established. Once that decision was made, the Construction Engineer and his immediate staff complied with that and things went very well after that point in time.

But up until that point in time, it seemed like the Construction Engineer was looking to get all the prerequisites out of the way and then hand him the ball, so to speak, and he'd run with the ball at that time. It was going to be the responsibility of the Project Manager's Office to deal with things like repayment contracts, Environmental Impact Statements (EIS), land certification, etc., all of the prerequisites leading up to going forward full bore with construction. After that, then it would be the Construction Engineer's role.

But here in Central Arizona, as I said earlier, it was not just a unique singular construction operation. There were a lot of other ramifications that had to be dealt with, and

obviously the Construction Engineer neither had the inclination nor the expertise to deal with things like repayment contracts and environmental impact statements. So I think after Cliff left and after this overarching concern was eliminated with regard to whether there was going to be a separate office or not, things leveled out, and I think that there was some acquiescence on the part of the Construction Engineer.

Also at that time and historically, the Construction Engineer really didn't answer to either the Project Manager or the Regional Director. He generally got his guidance and direction from the Chief Engineer. I think that was about the same time that the power of the Chief Engineer began to diminish, it seems to me, that there was no longer this direct chain of command communication from the Denver Office to the Construction Engineers in the field. That eventually was eliminated, as well. So I think all of that tended to make our job much easier here in the late seventies.

Storey: Now, that's about the time that the responsibility for contracting moved from Denver to the regions, for instance?

Morton: Yeah. That was also about the time, in the Keith Higginson era, that's probably a little bit later, but where the authority of the Construction Engineer on changes and modifications was reduced and the acquisition warrant authority of the Construction Engineer was downgraded to \$25,000 or less. At one time it was an unlimited warrant and the Construction Engineer was not only the contracting officer's representative, he generally also acted as the contracting officer on most

CAP Construction Engineer's relationship to the Project Manager may have been a sign of changes in the powers of the Chief Engineer in Reclamation

Contracting is moved from the Chief Engineer to the Regional Director

Construction Engineer's contracting warrant is changed from unlimited to \$25,000

Construction Engineer's responsibility in the contracting process is altered

things except the very large initial awards and, of course, that was done out of the Denver office.

Storey: This was all right after Teton, presumably?

Morton: Well, it was after Teton and it was after some of the scandals that occurred, acquisition type of scandals that occurred in the Department of Defense, problems with NASA. I think that the whole government contracting and acquisition process had undergone or was undergoing major reformulation, and we got caught up in the entire government reform issue of contracts, I think.

Affects of acquisition scandals in other agencies and bureaus affects Reclamation

Storey: What else was going on that first year? As you said yesterday, you came in, Mr. Hallenbeck left, and there you were. (laughter)

Morton: There I was. Well, on the construction side, as we discussed yesterday, the big thing there was first-delivery of water out at Harquahala and subsequently the first delivery of water into the Phoenix metropolitan area.

Storey: So Harquahala was while you were the acting Project Manager?

Morton: No, I think it may have been just before, the year preceding that. But subsequent to that we completed the sixty, almost seventy miles, of canal to the east of Harquahala. We were prepared in November of '85 to make the first delivery of water to the city of Phoenix. Of course, the building was now complete, the control system had been installed in the operation center. The Salt Gila and first stages of the Tucson Aqueduct, the Salt Gila was probably 50 percent along. The first stages of the Tucson Aqueduct, Phase A, as we called it, were just

CAP activities underway while acting Project Manager

Salt-Gila Aqueduct under construction

Phase A of Tucson Aqueduct beginning in 1985

getting under way at the Picacho and Brady pumping plants were under construction.

Much of the distribution system was now under construction in Pinal County. What else? We were looking to begin some of the dam construction. We had just completed the EIS for Plan Six. I think that was an '84 completion on the final EIS for Plan Six. We were beginning to collect design data at Waddell. That was going to be our first point of attack for construction. So we had a fairly substantial exploration program ongoing at Waddell, both in terms of the materials for the fill of the dam, as well as the subsurface exploration of the river channel. So there was a lot of exploratory activities ongoing out at Waddell. We were working with the Salt River Project on finalizing the plans for the safety of dams repairs at Stewart Mountain and Roosevelt.

We were about to get sued by the environmental coalition on our Cliff Dam decision, of course. We were in the process of completing the Tucson Phase B Record of Decision. I think the EIS had been just completed and we were about ready to announce a record of decision and start on the extension of the Tucson Aqueduct from the Marana area on south to the south boundaries of the San Xavier Indian Reservation. So there was just a tremendous amount of activity ongoing both in the construction area and in the preconstruction arena at that time.

Work at New Waddell was beginning in the mid-1980s

Suit by environmental coalition over Cliff Dam

Storey: So you walked into office and got sued, huh?

Morton: Yeah, that's not the first time. (laughter) It probably won't be -- well, probably will be the last, I've only got six months left. There's a situation up on Reach Eleven dikes on the Sumitomo situation that may result in another

lawsuit in the next six months, but that's about the only thing, I think, in the offing now.

Probably the biggest personal thrill that I had was the actual delivery of water to Phoenix. I mean, that was a situation that will live in my memory for a long time. The local political scene used that as a major milestone in their efforts to secure CAP. Many of the historical figures who had worked on the lawsuit with California back in the forties had been involved in the initial planning for CAP were honored at that ceremony and plaques were displayed. The big problem was that no Reclamation people were really honored. It was generally the local population, the local politicians, that received all the kudos.

"Probably the biggest personal thrill that I had [as acting Project Manager] was the actual delivery of water to Phoenix."

No Reclamation staff were honored when water arrived in Phoenix

Storey: Well, it sounds to me like they ran this celebration instead of Reclamation. How did that work?

Morton: Definitely. They had an organizing committee, the Central Arizona Project Association, the CAWCD, the Salt River Project, and the Arizona Public Service were the principal benefactors to make arrangements for the celebration. The congressional delegation, all of the local mayors, county officials, and so on were invited. If I remember right, it was about November the 15th of 1985 that we had the celebration here at Seventh Street. Had hot air balloons and tents in the parking lot and a lot of speech-making, a lot of patting on the back, lot of kudos for the folks who had been involved in the early stages of the effort. Not that everyone could agree. They were going to put up a plaque and try to designate the people on the plaque who were principally involved in securing the project, and they couldn't agree on a list of people. They got it up to about sixty people and they decided, "Well, that's getting a little long."

How the arrival of water in Phoenix was celebrated

Of course, there weren't any Bureau names mentioned, although quite obviously Cliff Pugh was one that should have come to mind. Cliff had been instrumental in getting the project authorized. He had been involved in the late fifties and early sixties in the lawsuit before the Supreme Court, and yet nobody wanted to put a Bureau of Reclamation staff person's name on the list. They finally decided that rather than engraving it in stone or bronze, they would just make a general bronze tablet commemorating and then reference a list of instrumental people whose names would appear in the board room, in the CAWCD board room here at the Seventh Street office. So that was how they handled it. In turn, there's a piece of paper in there and I think that every once in awhile they determine that they've left somebody's name off and they'll add another name on the list. (laughter) It's a rather long and extensive list of people who were involved.

But, like I said, we had tents and commemorative memorabilia, paperweights, plaques, photographs, hot air balloons and national media attention. I was sitting in my office one afternoon and I get a call from a stringer in Tucson who said he had been asked by *Newsweek* to write an article for *Newsweek* on what was going on. So I talked to him for about a half an hour and he said, "I need a photograph. I've got a photographer driving up. How do I get to your office?" I explained the directions to him and he said, "Well, she'll be there in an hour and a half."

I said, "You're in Tucson?"

He said, "Yeah."

I said, "I think it might be about two and a half hours before you get here."

"Well, can you wait that long?"

I said, "Sure." So I waited, and she showed up about five o'clock and we went out on the canal bank here and she took several shots of the canal and had me in one or two of them. Lo and behold, about a week later, there in *Newsweek* was Arizona's Morton, right there on the inside cover of "U.S. News" in the *Newsweek* magazine. So I got a little recognition that way. But that was a fun time there. Everyone was very cooperative. Everyone seemed to have a common goal, unlike today.

Storey: Tell me more about the relationship with CAWCD. Dennis [Schroeder] has also mentioned this, that when he first came he was introduced and they were, in effect, falling asleep while he was introducing himself and he said to himself, "Well, if they're not interested, why should I waste their time?" What's going on here? This isn't the usual dynamic that I hear about between water users and Reclamation.

Reclamation's relationship with CAWCD

Morton: That's very true. I would have to say that the genesis of the transfer from Reclamation construction to CAWCD O&M was the brain child of Ed Hallenbeck and Tom Clark. Tom Clark was the first General Manager for CAWCD. I think he left as the Deputy Director of the Department of Water Resources, he left that position, '81, I believe it was, and he worked for CAWCD. I think he had a staff of about four or five people at that time.

Transfer from Reclamation construction to CAWCD O&M to save Federal budget and FTE

He and Ed Hallenbeck sat down and developed a strategy to take CAWCD and allow it to grow while the Bureau work force, all the Reclamation work force, remained either constant or declined. The anticipation was that CAWCD would become the operating entity for the Central Arizona Project, and rather than to staff

"[Tom Clark] and Ed Hallenbeck sat down and developed a strategy to take CAWCD and allow it to grow while the Bureau work force . . . remained either constant or declined."

Reclamation to perform operation and maintenance functions during construction, I mean, this was an immense undertaking, 340 miles worth of canal to operate and maintain, much of it would come on line over a period of about seven or eight years.

Our first water deliveries were in '84. We didn't complete deliveries to Tucson until '91 or '92. There was a ceremony in '91, but from a practical sense, the ability to make reliable deliveries didn't occur until about '92.

So there was this long period of O&M, operation and maintenance, during construction that had to be satisfied. So Ed and Tom's view was, we needed to work as one unit during this transition process. The Bureau shouldn't be out there employing O&M forces when the District could hire the O&M forces and then contract with the Bureau to perform those O&M types of activities. So essentially, we co-domiciled the facility here at Seventh Street.

When we moved out here, we provided an area for CAWCD staff and we provided a much larger area for the Bureau staff. I think by '84, when we moved out here, CAWCD had about a dozen employees. Many of the employees were former Reclamation staff people. There were a couple of individuals who were working for CAWCD at that time who were kind of on a lend/lease program, but there's a name for it. Government personnel --

There was a long period of O&M during construction on CAP

Government employees who worked for CAWCD

Storey: The Interagency --

Morton: Right.

Storey: Whatever it is.

Morton: Yeah. Anyhow, there were a couple of people; one, the former Project Manager at Yuma, was on IPA, Intergovernmental Personnel Act, that's what it was called, on an IPA appointment. One of the Deputy Administrative Officers from Denver office, Nick Blodorn, was here under an IPA assignment with CAWCD, setting up their organization, their administrative organization. Darrell Summers, as I said, was former Project Manager at the Yuma Projects Office. He was on an IPA assignment to design their O&M work force.

So I guess I'd have to say that the basic structure and philosophy of the CAWCD at that time was geared to a traditional Reclamation approach to doing business, and I think we had a very common purpose in what we did. We talked, we made presentations to the Board, the Board or Tom Clark would come to our staff meetings, explain what CAWCD was doing. There was good communications between both staffs.

As the Reclamation forces completed work, jobs were offered to them within the District and many, many people went to work for the District, some didn't. So, for example, in the case of the Control Center, as the Control Center was completed, construction was completed, the software was developed and tested and put into production, the need for Bureau staff was essentially complete. The job had been done and these individuals were trained, didn't have parallel jobs within Reclamation to go to. There was no big new job with automated control systems that these people could look forward to. So three or four of them went to work for the District and became the water control operators for the District at that time. So the Control Center was essentially staffed initially by Reclamation employees, former Reclamation employees.

*In the early '80s
Reclamation and CAWCD
related well to one another*

*Reclamation staffers often
went to work for CAWCD*

So there was a lot of this two-way street process that went on, both initially when Ed Hallenbeck laid out the concept, and then subsequently during the early years that Bob Towles was here. There was general compatibility between the two agencies. Reclamation's work force stayed fairly constant at about 500 to 600 people, depending on whether we had active construction on [New] Waddell Dam. We peaked during the maximum construction years at Waddell Dam. I mean, that was 640 people or so, was when we were spending about \$100 million a year on Waddell Dam, that was when we had the greatest need for staff. But in the meantime, while we were at a fairly constant level, CAWCD was growing because there were more miles of canal to operate, there were more to maintain and there were more water customers to deliver water to, so the operation cost began going up.

So like I said, when we moved out here in '84, there was probably a dozen people working for the District. By '88 or '89, I think the District work staff was up to over 200 people. Well, those were 200 people that Reclamation didn't have to hire because the District was performing that O&M function while we were still under construction and we were paying the District the difference between what they were able to collect in water service charges and the cost of O&M. Under contract, we were paying them with appropriated dollars.

END SIDE 1, TAPE 1. JULY 16, 1996
BEGIN SIDE 2, TAPE 1. JULY 16, 1996

Morton: So I think that throughout that period, until the late eighties, was a real honeymoon. We worked well together, we saved on Federal FTE by having

"as we moved toward the transfer of the works, and as we moved towards initiation of repayment . . .

District forces do the job that we were responsible for getting done, we paid them for doing it. But as we moved toward the transfer of the works, and as we moved towards initiation of repayment, which is about the time that Dennis Schroeder came on board, things became more difficult. We weren't always working in the same direction, we were divergent on some issues from time to time. CAWCD was stressing completion of Waddell Dam. Waddell Dam provided not only a location to store water during the winter months and allow it to be regulated during the summer, but it also provided an incentive with regard to power marketing. Of course, the more power you could market and the more you could market during the summer, the greater the return was to the Development Fund, which reduced the amount of funds that CAWCD had to come up with for repayment. So there was a financial incentive for CAWCD.

So when we'd go to Congress, I guess, probably about '89 or '90, when we would suggest that a substantial sum of money be set aside for Roosevelt or for other parts of the program, CAWCD would stress in their presentations to Congress that the total dollar amount might be appropriate, but the distribution was inappropriate. We should be spending less money on Roosevelt and more money on Waddell because CAWCD's objective was to get Waddell completed earlier, or as early as possible.

Other issues. In the early nineties, the problem of the latent defects on the siphons, the corrosion of the wire wrapping on the siphon barrels became knowledge, and the program to repair those. CAWCD was of the opinion that shouldn't be part of the cost of the CAP, that the Federal Government should replace those at no cost to CAWCD, and they went forward with

things became more difficult." [between Reclamation and CAWCD]

Reclamation and CAWCD interests began to diverge

CAWCD pressed for completion of New Waddell and delay of other CAP components Reclamation gave a high priority

Another problem was the latent defects in siphons on CAP

independent legislation to secure that, and Congress did grant them a 50 percent relief from those costs. But they were not in agreement with Reclamation that it was a legitimate project cost to repair those siphons.

The method of repair was a sore point for a while. Generally we concluded that the best repair method was probably a steel pipe liner, but the operation and maintenance cost, the O&M, on steel pipe was probably higher than it would be on a monolithic concrete pipe. And, of course, they were trying to save on fifty years or a hundred years of future operation and maintenance cost, whereas Reclamation was looking at it as, "what's the cheapest first cost that we can get for replacement, what's the cheapest capital cost." Well, obviously, the cheapest capital cost, if you disallowed pre-stress concrete pipe, which we didn't want to get into as the replacement for pre-stressed concrete pipe that was in a failure mode, was probably steel-lined pipe. And that was borne out by the bids. I mean, we replaced the Salt River siphon with steel pipe just because it was a cheaper first cost associated with capital replacement.

So there were a number of issues that we had differences of opinion and disagreements on and cost of environmental mitigation. Up until the late eighties, CAWCD never questioned the commitments that had been made in environmental impact statements. Lo and behold, we had some consultations on endangered species that resulted in some substantial cost increases to perform mitigation or reasonable and prudents to eliminate jeopardy to endangered species, and CAWCD took exception to those and argued vociferously that we shouldn't commit to proceeding with those kinds of expenditures of funds.

CAWCD sought relief from repayment obligations on siphon repair and replacement, and Congress gave them 50% relief

Reclamation and CAWCD diverge on how to repair/replace the CAP siphons

In the late '80s CAWCD began to question environmental commitments made by Reclamation

So I don't know that there was any one thing, but just a series of things, that generally hit CAWCD in the pocketbook. They became more cognizant of those costs, they saw the slice of the Federal pie in terms of dollars that was coming to Arizona was decreasing over time. They could see the end of the golden egg, so to speak, and the coming of having to pay for this \$3 billion program that they'd been the beneficiaries of for the previous fifteen or twenty years, and I think that they tried to slow the inevitable.

We were prepared early in 1992 to declare substantial completion of the Central Arizona Project in September of '92, which would have required the initial repayment payment to be made in January of 1993. And almost immediately when we announced that to CAWCD and their Board, they began to lobby in Washington to delay or defer that Declaration of Substantial Completion. In fact, the initial payment would have been about \$41 or \$42 million as we had calculated it. They worked out an arrangement with the Department of Interior to pay one-half of what would have been deposited in the Treasury as prepayment to justify their position that the project was not substantially complete, not all aspects of the project could receive the benefits of the project and, therefore, we shouldn't be in a position of declaring substantial completion. Well, the only thing that wasn't complete was the last six miles of pipeline, whose only delivery point was San Xavier Indian District and the Tohono O'odham Nation, and the District wasn't in a position to accept any water anyhow, so it was kind of like the definition of substantial completion is that the benefits of the project can flow to all beneficiaries. And, yeah, we couldn't do that, but, in fact, that one beneficiary didn't

"I don't know that there was any one thing, but just a series of things, that generally hit CAWCD in the pocketbook."

"They could see the end of the golden egg, so to speak, and the coming of having to pay for this \$3 billion program that they'd been the beneficiaries of for the previous fifteen or twenty years . . ."

CAWCD sought to delay Reclamation's Declaration of Substantial Completion in 1992

CAWCD worked out a deal with the Department of the Interior regarding payments to delay the Declaration of Substantial Completion by one year

have the wherewithal to realize those benefits anyhow.

So it was kind of a false argument, in my mind, but they agreed to accept or to pay the government 50 percent of that initial repayment to delay the Declaration of Substantial Completion by a year. So it wasn't until September of '93 that the facilities were actually transferred to CAWCD and repayment was initiated in January of 1994.

I don't know, the relationship just seemed to deteriorate, and I think it was even made worse as a result of failures in the agricultural economy within Arizona for various reasons. Pests, boll weevil, various agricultural kinds of pests infested Arizona in the early 1990s. We had poor crop yields in that era. The prices for agricultural commodities in that era were down. We had major floods in January of '93 that caused disruption in the farm activities. The ability of the contractors to take CAP water from a financial perspective deteriorated. I think a lot of that caused problems within CAWCD's organization. They didn't feel comfortable in making major outlays when they didn't have any revenues coming in. So you know, their thrust at that time was to delay any future obligations, to work out an arrangement where we can financially restructure the Central Arizona Project so that the burden is not placed on an economy that's in a very serious state of distress, mainly the agricultural economy.

The issue there was that you had a million and a half acre-feet of water that was available to be delivered. You had 75,000 or 80,000 acre-feet being used by Indian contractors. You had maybe 250,000 to 300,000 acre-feet being used by M&I contractors. That left 1.2 million acre-feet or so to be used by non-Indian agriculture. And non-Indian agriculture couldn't afford it as a result of

"the relationship [between Reclamation and CAWCD] just seemed to deteriorate, and I think it was even made worse as a result of failures in the agricultural economy within Arizona . . ."

The effect of a poor agricultural economy on CAP and CAWCD

CAWCD seemed to be trying to restructure its debt repayment obligations for CAP

The economy and non-Indian agriculture's dilemma

a various multitude of reasons why they couldn't afford it, but they were caught in the position of having to either take the water or to at least pay the fixed O&M costs for that water and not get it.

So CAWCD, just prior to the '93 and '94 timeframe, was of the opinion that there was no way that they could go forward, pay for the project, enforce an additional financial burden on non-Indian agriculture. So that was when we really became at odds and when, eventually, we sued and counter-sued one another and now we're in litigation over how we recover our costs.

Storey: And how much we recover?

Morton: And how much we recover. But what the amount of the final obligation is and how much is owed, I mean, CAWCD owes about 35 million from 1993 that they didn't pay, or '94 that they didn't pay and they owe about 60 million from 1995. With the interest and penalties, it's almost 90 million dollars that they owe the United States for between 1994 and '95's payment that we will be presenting them a bill for.

We will be putting Stage 2, the Roosevelt Dam, and the New Waddell Dam in repayment status this September, another two months. That will add another \$20 million to their annual bill, so to speak. So we'll have \$170 million in bills that CAWCD will owe in January of '96. I'm sorry, January of '97 we'll have that much in total bills due. Something like \$170 million due.

Current unpaid repayment bills of CAWCD owed the Federal Government

Stage 2 of repayment will be put in place in September of 1996 for New Waddell and Roosevelt Dams

Storey: Well, to me, that sounds like an awful lot of money. Do they have it with all these financial difficulties that have been going on?

Morton: They have roughly \$200 million in their operating reserves now, and from power revenues they are

collecting almost \$25 million a year. Their *ad valorem* taxes raise another \$23 million, roughly. They have a 4.5-mill surcharge on all the power at Hoover. I think that brings in about \$6 million a year. And then whatever they get for the water service. In other words, they recover their full O&M, plus in the case of M&I users, about \$40 an acre-foot to apply to capital repayment. They're delivering over \$300,000.

Storey: Over 300,000 acre-feet?

Morton: That's about 300,000 acre-feet. Yeah, that's about \$12 million.

Storey: Well, that's up around the area of 65 million so far. (laughter)

Morton: That's what I'm saying is that the sum total of what they charge should more than cover what their annual obligations are. But the problem is they've chosen not to dip into their reserves to make these payments for the last couple of years when water deliveries had been low. Now, this year, in the calendar year '96, their water deliveries are approaching a million acre-feet a year. They should be relatively self-sufficient, either through water revenues, power revenues or *ad valorem* tax income.

But they've chosen to argue, and argue before the court, that Reclamation has erroneously calculated their repayment obligation, that we've overstated it by about \$500 million, that they should pay no more than \$1.7 million, and our calculations show that they should pay \$2.2 billion. I think I said 1.7 million. \$1.7 billion. They claim that should be the limit of their repayment obligation. It's the government's

Reclamation believes CAWCD's repayment obligation is about 2.2 billion

CAWCD believes its repayment obligation should be about 1.7 billion

The repayment obligation is the major subject of the

perspective, based on the cost allocation that we did in 1993, that their ultimate repayment obligation should be approximately \$2.2 billion. So that is the major bone of contention in the litigation.

In turn, you know, if the court finds that they're correct, there would obviously be some adjustments in what they owed the United States in January of '95 and January of '96, which as I said earlier, now amounts to almost \$90 million when you include interest and penalties. So their attitude is, "Well, we're not going to pay it until the court rules on what our obligation is, then in turn then we'll adjust what the payment should be, because we think we're right and you, the government, [we] think you're wrong."

We've counter-sued against the District and said, "You're in default on your contract, you owe us \$89 million and we expect to collect."

So there's a number of less significant issues embodied in this litigation, but that's the principal cause for the suit.

Storey: And the primary things that are at dispute in the half-billion are what?

Morton: Actually, they're not anything physical on the ground. They're the methodology that went into deriving the cost allocation, the amount of water that is projected to be delivered, the benefits for that water, the amount of water that would go to Indians versus the amount of water that would go to subcontractors, the amount of water that would go to M&I, as opposed to irrigation. Obviously, we've taken the perspective that irrigated agriculture, the cost of water to irrigated agriculture, will prohibit the profligate use that was originally envisioned. They just are not going

*lawsuits between
Reclamation and CAWCD*

*The methodology of
calculating cost allocation
is the basis of the lawsuits
between Reclamation and
CAWCD*

to be able to afford the water at the prices that are going to have to be recovered.

So when you embody all of that, things like flood control benefits, CAWCD feels like we've understated the flood control benefits, that we have understated the recreation benefits and not applied them correctly. So it's more in the cost allocation procedure than individual aspects of the construction, although the issue of the siphon repairs is still out there. Like I said earlier, they went to Congress, Congress amended the Basin Act to make the cost of the siphon repairs 50 percent nonreimbursable. To our way of looking at it, that means the other 50 percent is reimbursable. Well, CAWCD doesn't feel that they should be charged for repairs, and so they're taking exception to that. That's one of the points of contention in the lawsuit.

Storey: Tell me how this lawsuit works. Dennis [Schroeder] is here as Project Manager, you're here as Assistant Project Manager. Who's representing us? Who's making the decisions what we're going to do to counter CAWCD's lawsuit and those kinds of issues?

Morton: Well, the Justice Department defends all Federal agencies in a lawsuit like this, and so a team of Justice Department attorneys in Washington is our legal defense. There's a team of about four attorneys that represent us that are assigned to General Litigation Division of the Justice Department in Washington.

The lawsuit, of course, is brought against the Secretary and the Assistant Secretary for Water and Science. The Commissioner, the Regional Director, and the Area Manager are the named defendants in the lawsuit. Generally, I

How the lawsuit with CAWCD is actually managed in the Federal Government

would have to say that guidance for the suit comes from Washington more than it would from the field. Broad policy guidance on how to defend comes out of the Department. I think that Solicitor Leshey [phonetic], Assistant Secretary Beneke, and their advisers are the people that direct the strategy, the broad strategy of the lawsuit.

The implementation aspects are all down here in Phoenix. The document production efforts, the proposed specific documents that need to be filed, the responses, the interrogatories, the document production requests, the discovery process, the kinds of questions that need to be asked are generally formulated in this office and provided to the Justice Department and the Field Solicitor's Office here in Phoenix, the Department of Interior Field Solicitor's Office, and they put it in the proper format and submit it to the court.

So I guess I'd have to say we're the idea people here in Phoenix and the soldiers that collect all the information, collect all the records and all the documents, and the Washington staff gives broad policy guidance on whether we're going to agree to this or disagree with this, how we should deal with the various allegations that were made in the lawsuit.

Storey: And the Field Solicitor here in Phoenix does what?

Morton: We're now in a discovery process, so the Field Solicitor, we only see the Justice Department attorneys about once a month out here in the field. We're in the discovery process now, so what that involves is that we are preparing, producing documents for the plaintiff's attorneys to review. We are in the process of giving depositions to the plaintiff's attorneys, the District's attorneys.

Producing documents for the discovery process in the lawsuit between Reclamation and CAWCD

On the other side, we're requesting documents of CAWCD and we will in the next month or so begin depositions of CAWCD witnesses. So we're in a discovery fact-finding time period right now. There's been no active litigation, no pleadings other than the initial complaint and response to the complaint.

Storey: Which was filed when?

Morton: Over a year ago. (laughter) Yeah, probably in May, I think, May of '95, CAWCD filed a complaint with the Bankruptcy Court in Tucson because there was a bankruptcy situation ongoing with the Central Arizona Irrigation and Drainage District in the Bankruptcy Court in Tucson. They felt like by filing the complaint in that venue they could get early consideration because the Bankruptcy Court was trying to get CAIDD, the Central Arizona Irrigation and Drainage District, in some reorganization mode and out of bankruptcy so that creditors could be repaid and the assets could be released. So CAWCD, on a very tenuous basis, decided they would file their suit there because the outcome of that situation, since they were a claimant and a creditor in that bankruptcy case, and the proceeds would go to repay the Federal Government, if they didn't get any money out of CAIDD, they were claiming that it would adversely affect their ability to repay the government.

So they went to the Bankruptcy Court and said, "Well, this whole big issue of how much we owe the government has to be settled by the Bankruptcy Court, so in turn that the reorganization structure for Central Arizona Irrigation and Drainage District can accommodate the repayment."

CAWCD filed its suit in the Bankruptcy Court in Tucson

Well, it was only a very small part of the overall repayment, almost a *de minimus* part of the repayment. The court didn't think they were the proper venue, and I think that the judge ruled on that, that the selection of the Bankruptcy Court was an inappropriate venue to consider the broader issue of what CAWCD owed the government.

So while they were arguing with the bankruptcy judge in Tucson, the Justice Department filed suit against CAWCD here in Phoenix in Federal District Court and said, "CAWCD is in breach of their contract, they haven't paid the United States what they owe the United States. And the reason they haven't paid is that there's this big argument on how to calculate their repayment obligation and you, the Federal District Court, need to decide this issue."

Well, then when CAWCD were told that they had selected an inappropriate venue for their suit, they brought their suit to the Federal District Court as well. So the judge is sitting here with two complaints, one from the United States, one from CAWCD. Well, the court obviously ruled correctly because they did rule, but the bottom line is, I think we would have been better served if we had been the plaintiff and CAWCD had been the defendant.

I think that, generally speaking, the Federal Court system anticipates that the United States Government is always going to be the defendant, so they said, "All right, even though the Justice Department came in and filed suit about a month earlier than CAWCD did, we'll accept CAWCD, we'll accept their complaint and we will label the United States' complaint as a countersuit."

Justice Department files suit against CAWCD in Federal District Court in Phoenix

CAWCD moved its suit to the Federal District Court in Phoenix

Federal District Court labelled the United States' suit as a countersuit even though it was filed first in the Federal District Court

So right now we're the defendants, the United States is the defendants, and CAWCD is the plaintiff. So in terms of the direction and timing and activity level, CAWCD's kind of in the driver's seat rather than the government, you know. What they have done is they've asked for an extended discovery process and have submitted requests for document production that now amounts to about over a million documents, probably. Through the Justice Department we've contracted -- actually, the Justice Department has contracted with an automated document production service and we've agreed to pay their costs, Justice Department's costs for that production service. The initial estimate from the Justice Department was for like \$2.8 million for document production. So we've got a staff of about --

Implications of CAWCD's being plaintiff rather than defendant

Producing documents for the discovery process in the lawsuit

END TAPE 1, SIDE 2. JULY 16, 1996
BEGIN TAPE 2, SIDE 1. JULY 16, 1996

Storey: [This is tape 2 of an] interview with Brit Storey with Larry Morton on July the 16th, 1996.
... of about three Bureau people.

Morton: We have three Bureau people that are visiting various Bureau offices in Denver, Boulder City, Washington, D.C., Phoenix, and other agency offices, Western Area Power Administration (WAPA), Fish and Wildlife Service, Bureau of Land Management, National Park Service, etc., to collect documents that may have a bearing on the costs of the Central Arizona Project and may have a bearing on the other allegations that are in the complaint as a result of the District's attorney's request for production of documents.

The Justice Department has employed this automated record service agency, and, in turn, they are taking the documents and scanning them, using digital scanning techniques, and they will reduce all those documents to CD ROMs, and then the CD ROMs will be provided to both our attorneys and the plaintiff's attorneys as a basis for proceeding with the case. It's just going to take time to research and identify and tag and scan and reduce to CD ROMS all of these documents.

The contractor, CACI, is out of Washington, D.C., and they've had a team of five people from Washington here in the western United States now for over two months. They've got five flatbed scanners and they've hired locally here about ten laborers to assist them to move all of these paper records from various repositories here on the project and within the Phoenix Metropolitan Area to a trailer that we have situated here on-site, and they scan all that material, they put bar codes on every one of the pieces of paper and scan them digitally and put them in the computer and then, in turn, then they will take the computer disks back to Washington, tapes and files, back to Washington and reduce that information to CD ROM so that it's readable by computers. That's probably another two- three-month process, and we've already been at it for over two months, so it's probably about a five-six-month process.

The Bureau staff people are out in front. They made arrangements, I think, that the CACI people will have two teams in Boulder City next week. They'll be doing the regional documents. They've been to Denver, they will be going back to Denver. The volume of paperwork in the Assistant Secretary and Commissioner's office was found to be relatively minor. They've sent that to the CACI offices in Washington. It's been

already scanned in Washington. And now we're reaching out to other agencies, like I said, BLM, and the Forest Service, Parks Service.

Storey: Why?

How other Federal agencies are involved in the lawsuit

Morton: Because pieces of the complaint deal with ancillary issues. For example, a case in point would be one claim in the complaint has to do with a piece of property that we had at Bell and Scottsdale Road that we transferred to the National Park Service, and then the National Park Service did an exchange with a private developer in the Tucson area to add land to the Saguaro National Monument. CAWCD alleges that they should have been paid for the value of that land at Bell and Scottsdale Road. It was a fairly high-valued piece of property. They should have received the current fair market value, either as part of their repayment obligation or in cash.

Dispute with CAWCD over Federal land used for Reach 11 construction

The property had never been transferred to CAWCD. It had been acquired for temporary construction purposes. Its utility for long-term operation and maintenance, there was no utility for long-term operation and maintenance. It was a staging area, a borrow area and a office site area during the construction of Reach 11 and no longer needed for operation and maintenance.

The land was acquired in the name of the United States and the Bureau of Reclamation from the State Land Department at no compensable cost to the State Land Department. It was an in-lieu selection of a piece of land that was, I don't remember how many acres, eighty acres, let's say, seventy or eighty acres. The State Land Department was offered any piece of BLM land in the State of Arizona as an in-lieu selection, so there was no cash payment made for the value of

that land, so the cost to CAP and the cost to CAWCD was essentially zero. I mean, what amounted to the cost was the administrative cost for effectuating this land exchange between the State Land Department, Bureau of Reclamation, and the Bureau of Land Management. It was a labor cost, and that was it. I think the books show that it might have been on the order of \$20 or \$30,000 to obtain that piece of land.

Well, now that piece of land was worth \$6 million, and it's our position that it was \$6 million of Federal value and we traded it to the Park Service and the Park Service exchanged it with a developer in Tucson. So some developer got a \$6-million piece of government property at Bell and Scottsdale Road in Phoenix and the Park Service got a \$6-million piece of land in Tucson for expansion of the Saguaro National Monument. There was no exchange of funds, there was no receipts, so CAWCD wasn't entitled to anything.

On top of that, at most what they would be entitled to would be a credit, but, in fact, the value, the actual cost of that piece of land was so *de minimus* and we used it during the construction, we used it for five years during the construction, any reasonable man would conclude that that outlay of some \$30,000 was more than offset by that interim use that we made.

So our feeling is that CAWCD shouldn't be entitled to anything. Their position in the lawsuit is that they should get \$6 million of credit, current credit on the current repayment obligation or \$6 million cash, one or the other. Anyhow, bottom line is, their attorneys have asked that the Park Service produce the appraisals, the contracts, all of the documentation that went into the land exchange that resulted in the acreage at Bell and Scottsdale Road, the title to that acreage being vested in a private developer, private entity.

So in turn, we've got a team of people, a CACI scanner, a laborer, one of the Bureau people over in Albuquerque with the Park Service Regional Office, getting all this material together to produce what CAWCD has asked the court to direct us to produce. And that's just kind of the tip of the iceberg, but that's an easy one to visualize, why we're with the Park Service. There's innumerable records with the Western Area Power Administration because of the various interconnections with transmission lines and power sales contracts. They want to know exactly all of the notes, all of the internal memorandum that went on between Reclamation and WAPA for the sale of power, for the construction of transmission lines that serve the pumping plants that Western built on our behalf. So they're probably going to spend three or four weeks at the Western Area Power Administration's office here in Phoenix to sort through all of those records and copy all of those records.

Fish and Wildlife Service has promulgated a number of findings with regard to endangered species, a number of recommendations under the Fish and Wildlife Coordination Act on how Reclamation should protect environmental resources here in the project area. We've paid Fish and Wildlife Service in some instances to produce these analyses for us. CAWCD said, "Well, every analysis that the Service has done for Reclamation we're going to want to look at, want to validate, verify the costs, want to make sure that Fish and Wildlife Service was actually spending the money that Reclamation provided to them on Reclamation programs and weren't out there doing something for some other entity, Forest Service or somebody else. We want to make sure that all of the costs were reasonable and

justified, so we want all of the documentation of all transactions that went on between Reclamation and the Fish and Wildlife Service for the past thirty-five years." So that's what we're having to produce. There's no reasonableness in this.

Storey: Quite a burden on everybody, actually.

Morton: Yes.

Storey: First we have to produce it, then they have to read it.

Morton: Right. Presuming that they do read it.

Storey: They have to pay their attorneys to read it, maybe I should say.

Morton: Sounds like billable hours to me. (laughter)

Storey: A million documents.

Morton: Well, that's a million pages of paper, I think.

Storey: A million pages, okay.

Morton: Yes. I think that's what we've conservatively estimated that we're going to put on CD ROM.

Storey: And Justice thinks it's going to cost 2.8 million?

Morton: That was the request from Justice. They had a proposal from CACI that involved not only the document production, but also the post-document production support, automated retrieval activities, computer maintenance, operation and maintenance for three years. So that's \$2.8 million, is the proposal.

Cost of production of documents for the lawsuit with CAWCD is estimated at 2.8 million

Storey: And who's going to ultimately pay that 2.8?

Morton: Well, some taxpayer. I'm not sure which one. That's also a bone of contention. It was our belief that this dispute arose because of administration or inability to administer the master repayment contract. It came about because of differences of interpretation in the master repayment contract. That is a O&M cost. The Lower Colorado River Basin Development Fund was established by the Colorado River Basin Project Act. Its initial objective is to fund operation and maintenance expenses, so it's our viewpoint that the Development Fund becomes the initial cash register, if you will, to pay these costs. And so all Federal costs are being billed to the Development Fund. The receipts in the Development Fund are those that accrue as a result of commercial power sales.

So for every dollar that is spent in defense of this lawsuit by the government or the government's contractors means a dollar less that's in the development fund to help defray the capital repayment of CAP. So, from a bottom-line perspective, every dollar of cost results in a dollar less that CAWCD has to pay the government, and if the court rules that they owe the government that much money, then they're going to have to get that dollar from some other source, and the primary source that's available to them is *ad valorem* taxes within the State of Arizona.

So from our perspective, if we win the lawsuit, if the government, if the United States wins the lawsuit, the burden of that lawsuit is going to be paid almost entirely by the taxpayers of the state of Arizona.

On the other hand, CAWCD's attorneys are billing CAWCD, and the only source of revenue CAWCD has is water sales and taxes.

Who pays for the costs of document production in the lawsuit with CAWCD

From the Federal perspective, taxpayers of the State of Arizona pay for the CAWCD lawsuit

The water sales are generally locked in by contract, so the only source of revenue available to CAWCD is also taxes. So basically, the taxpayers of the Central Arizona Water Conservation District, the three-county area, Pima, Pinal, and Maricopa Counties here in Central Arizona, those taxpayers are footing the bill for this lawsuit on both sides of the case. Now, whether that ultimately will be the result depends on the final determination of the lawsuit. But right now, the taxpayer in Central Arizona is footing the bill on both sides.

Storey: Do they have independent legal counsel or do they have internal legal counsel?

CAWCD's legal counsel

Morton: They have both. But for purposes of the lawsuit, the principal attorney for the District is outside counsel.

Storey: What firm is that?

Morton: Stewart Somack [phonetic] and his partner are the principal counsel, but they also employ two firms here. His firm is in Sacramento or San Francisco, I'm not sure which, but in California.

Storey: And I take it they are water rights specialists or something.

Morton: No. I don't know, this is really contract law rather than water rights. So I think that they're contract law specialists primarily. This is a dispute over a contract. Then they have two firms here locally that are participating in that. Their budget, the CAWCD Board, of course, it's a public entity, they talk about litigation in executive session that's not open to the public, but various aspects of their activity are public. They have open meeting

law here in Arizona, so their board meetings are open to the public and there are some public discussions that go on in board meetings. They have established for, let's see, the fiscal year just ended, so they established for last fiscal year, fiscal year that ended on June 30th, 1996, there was a budget of \$2 million that had been identified with legal representation for the lawsuit. And I'm not certain how much -- there's a similar sum for the fiscal year that runs from -- [Tape recorder turned off]

Storey: We were talking about the budget CAWCD had for the lawsuit, I think.

Morton: I think that, to the best of my recollection, they established for fiscal year July 1, '96 through June 30th, '97, they established a budget of about 2.3 million for legal representation on this lawsuit. So for two years, they're looking at about over \$4 million, potentially, as their bill for representation.

CAWCD's costs for legal representation in the lawsuit

Storey: That's interesting.

Morton: Of course, the government, I'm certain that the Federal attorneys probably are paid somewhat less than the District staff attorneys, but nonetheless, we've got about, like I said, there's a team of four attorneys in the Justice Department in Washington. The U.S. Attorney for Arizona is somewhat involved, she gets briefed about once a month, so at least she has some understanding of what's going on. There's a principal attorney, a Deputy U.S. Attorney here in Arizona, that's been assigned to the case. So while he's not going to specifically litigate it, he at least is spending some of his time on it. At least two of our Field Solicitors here in Phoenix have been involved,

Federal attorneys working on the lawsuit

and there's been one attorney in the Solicitor's Office in Washington, Bob Stall [phonetic], that's been very closely involved and was the principal author of our sixty-page set of interrogatories that was furnished CAWCD, Interrogatories Number One. I think they envision Two and Three in the near future.

So there's a number of interrogatories, the lawyers are engaged in depositions, the principal Justice Department lawyer will be here today for depositions, today and tomorrow. It's a very extensive and costly process we're going through.

Storey: What kind of schedule is contemplated?

Morton: Well, the original schedule was probably an accelerated schedule. It was one that wasn't attainable and I have not seen a revised schedule. The schedule for depositions started back in February, I believe, Secretary [Bruce] Babbitt was number one on the hit parade and it went down through the organization, former Assistant Secretary --

Storey: Betsy Rieke.

Morton: Betsy Rieke, current Assistant Secretary Patty Beneke, Dan Beard, Eluid Martinez, Steve Magnusson, etc., Austin Burke, down through the organization. Former Assistant Commissioner Don Glaser, Regional Director, Project Manager. Haven't got to me yet. I was originally scheduled for deposition on July 17th. That schedule has now been abandoned. They're not projecting a date except they said probably late August or early September. So the original schedule that was laid out and submitted to the court around the first of February is now at least a month, if not two

months, behind. It slipped at least that much, it looks like.

Similarly, just the intricacies of producing all these documents and the sheer effort to produce these documents has slipped that program as well. I don't think there has been any schedule laid before the court. Every thirty days or so, they have a status hearing before the judge, and all of the pleadings are just kind of on hold until we've gone through this discovery process. I think they just go to the status hearings, they're relatively short hearings, and they tell the judge that 50 percent of the depositions has been done and 40 percent of the documents have been produced or whatever. Whatever the current status is, they inform the court of that. They also inform the court of any changes, any additional individuals they want to interview and take depositions for or additional materials or responses to interrogatories. CAWCD filed their interrogatories in April, I believe. We've responded once. They've supplemented.

Storey: An interrogatory is?

Morton: A list of questions. What was your interpretation of this? How did you mean to say that? What other documents do you have at your disposal which would indicate your position, etc., etc.

The government, just in early June, filed interrogatories. I don't think they are supposed to respond to those interrogatories until the end of July. So CAWCD is working on the questions we've asked them, the first series of questions that we've asked them. So this is just a monstrously huge fact-finding situation right now.

Storey: What are the projections for when this will go to trial and be over with? You're shaking your head no. Do we have any idea?

Morton: I don't think anybody knows for certain. What I can tell you is that we've had to deal with the budget and we are developing our budget estimates for fiscal year '98 at this time. Fiscal year '98 starts in October of '97 and runs through September of '98. A couple of the issues relative, for example, to funding the siphon repair work are tied up in this lawsuit, and for the purposes of our budget formulation strategy we've concluded that there would be no need to budget funds for siphon repairs because they're still going to be in litigation. That has been accepted within Reclamation as a reasonable approach, so I don't think anyone in Reclamation anticipates that this litigation will be completed prior to the beginning of fiscal year '99, which would be, you know, October '98. So that's over two years from now. So I don't think anyone in Reclamation envisions that it will be completed within the next two years.

Reclamation believes the lawsuits with CAWCD will not be settled before Fiscal Year 1999

Storey: You mentioned that the CAWCD is a public body. Does that mean that the Board of Directors is elected?

Morton: Yes.

Storey: Have there been changes in the Board that have contributed to this tension with Reclamation, do you think? Or do you think this is just an evolutionary process or what?

Morton: Well, I think it's an evolutionary process. I think that initially when CAWCD was set up by the state legislature, many of the people who were

How the board of CAWCD has changed over the years

initially appointed, the initial organization was appointed, and I think that many of those individuals, as well as the first several years of elected officials that were elected to the Board had a background with CAP, had a long-term relationship with CAP. They were either former governors or city councilmen or mayors or public citizens who had worked for, or on behalf of, or been employed by CAP in some fashion or another.

Now it's not so much, "Let's get CAP built," but it's a, "Let's manage CAP in an equitable, reasonable, businesslike fashion." So the people who tend to run for the Board now are interested in getting good-quality water at a reasonable price. They're interested in ensuring that CAWCD operates in a businesslike fashion, that the public fisc is not neglected, that the homeowner doesn't pay an inappropriate share of cost for the project, etc.. So they run on those kind of bases and it's not, "Let's go get Federal money to get CAP built," but, "Let's make sure that we're getting the benefit that we're paying for and make sure that our costs are reasonable and we're running an efficient operation and so on."

So many of the people that you see now serving on the Board may not have had a very long-term relationship with CAP. There are still a few folks. One of the representatives from Tucson is a former executive with the Tucson Water. Tucson Water is the municipal water purveyor in the Tucson area. He was the former General Manager of Tucson Water. So he's had a long-term relationship. But I can't think of anybody else on the Board today that's had a relationship that exceeds maybe ten years with CAP. Many of them are still former elected officials. Like there's the former mayor of the city

of Glendale on the Board. Former mayor for the city of Chandler is on the Board. But they've not really been intimately involved with CAP until the time that they took the position on the Board. The early Boards --

END SIDE 1, TAPE 2. JULY 16, 1996.

BEGIN SIDE 2, TAPE 2. JULY 16, 1996.

Storey: The Boards in the seventies and eighties, you'd say the opposite?

Morton: Yeah, they came on the Board after they'd worked for, on behalf of, or been involved with CAP for ten, fifteen, twenty years. The current membership, generally, their relationship with CAP starts at the time they come on the Board.

Storey: I think this is a good time to ask a question I wanted to ask anyway, and that has to do with the attitude of CAWCD and I think maybe Arizona in general. Is there sort of an attitude out there pushing the way they're responding to CAP that, "You guys owe us this project, this is our water and it's time for you to pay up"? Do you see any of that out there?

Morton: Well, I think within Reclamation, I think there's an attitude that it's time to pay the bill. Now, on the other hand, I think that there's a lot of, at least in the CAWCD perspective, there's a lot of anticipation, or a lot of -- that's not the right word, but they come to the table and ask the question, "What have you done for me lately?"

You look at the situation that we have here today, we have a pending budget request of about \$80 million before Congress for fiscal year '97. Of that \$80 million, about \$30 million is earmarked for distribution systems and other

benefits to Indian communities. Another \$25 million is earmarked for scrubbers for payment, the cost of the scrubbers at the Navajo Generating Station. That's 55 million out of the 80 million. A lot of the \$25 million of other work that's ongoing is basically clean-up work associated with [New] Waddell Dam, contract completion work associated with Waddell Dam and Roosevelt Dam and funding for environmental mitigation.

We're not out there building new major infrastructure that's of direct benefit to CAWCD or their water service contractors. We're not building the Tucson Aqueduct. We're done. We're not building New Waddell Dam. We're done. We're building things, relatively small things in the big perspective, but things that are associated with recreation, with water deliveries to Indians, with environmental enhancement activities, with environmental mitigation activities, repository culture resources repository. And the attitude that CAWCD takes is, "Yeah, that's fine, we've got to do that, but the government's not bringing any big bucks to Arizona to benefit CAWCD or its contractors and, therefore, we're not going to be a big supporter of your program. We're not going to go out of our way to be an advocate for the Bureau of Reclamation, because there's no immediate net benefit that we're going to derive from that." I think that philosophically is where CAWCD is coming from today and, in fact, on various fronts they're opposing our efforts because they see that as adding to their repayment obligation, and that may give credence to the government's position that their repayment obligation ought to be more than what they're alleging in the lawsuit that it is.

CAWCD seems to believe there is no longer a net benefit to it for work in progress

So we have a biological opinion on the Southwest Willow Flycatcher at Roosevelt, that the service is just issued in draft form that we're dealing with right now. CAWCD asked to be involved in that as an applicant. They were granted that right. They have opposed, for financial reasons, not for scientific reasons, but for financial reasons the proposed reasonable and prudent measures that will eliminate a jeopardy opinion.

So I guess we see CAWCD opposing on many fronts where it adds to the cost of the project unless there's some degree of assurance that that cost will not somehow flow back to CAWCD for repayment, whereas ten years ago, they would not have questioned that cost. But on the other hand, there was a \$100 million a year of Federal appropriations coming to Arizona to build infrastructure for the benefit of CAWCD. Now that there's not that appropriation sitting out there, it seems to me their attitude has changed significantly.

Storey: Good. Well, let's go back, if we can, to when you first came in as Assistant Project Manager. My notes say that in '87, Plan 6 was amended. What was going on? If I recall, you said earlier that '85 they had just finished the environmental statement for Plan 6. What was going on that was causing a need to change it almost immediately?

*Why Plan 6 was amended
in 1987*

Morton: Well, there was a continuum of activity there. I think that the EIS made and finalized in '84 or '85, record of decision was published in '85, I think. I'm sure of that. And accompanying that record of decision was a determination by the Secretary that the implementation of Plan 6 was going to be contingent on local funding, that the Federal Government was not going to bear the full cost,

the full burden of the initial cost of Plan 6. Plan 6 at that time was a billion-dollar program. It involved the enlargement of Roosevelt Dam, the reconstruction of New Waddell Dam, the modification of Stewart Mountain Dam, and the construction of a new dam at the Cliff site, Cliff Damsite on the Verde River. That was estimated as approximately a billion dollars at that time. It might have been 1.1 billion, but it was a very expensive proposition.

So the Secretary said in 1985 that Plan 6, the implementation of Plan 6, was going to be contingent on the local entities, the beneficiaries, picking up a share of that initial cost up front or concurrent with construction, that we were not going to appropriate one billion, or a little over \$1 billion and then have that subject to a repayment contract and the United States bearing the interest of that additional borrowing and so on, that cost. There was opposition to doing that.

So there was no guidelines at that time. Still is not any real good guidelines on what represents a reasonable level of cost sharing, although we do have some specific programs that allude to 25 percent, other ones that allude to 50 percent, but at that time there was no real direction. Basically the Secretary said, "Make us an offer," is what it boiled down to, "and we'll see. If the offer's good enough we'll proceed with implementation of Plan 6."

Well, some of the programs that were involved in Plan 6, of course, were safety of dams programs that directly benefitted the Salt River Project. And under the safety of dams laws that were in place in 1984, the Salt River Project was obligated to pay for 15 percent. They stood up right away and said, "Okay, we already have this obligation, we could take a repayment contract,

Plan 6 was to be implemented only with cost sharing by local entities

Salt River Project agreed to pay 15% of safety of dams work at Roosevelt Dam

but we're prepared to fund our share of the obligation, 15 percent of the safety of dams cost, we'll fund that concurrent with construction."

But the rest of the broad CAP community wasn't prepared to stand up and make that kind of assertion immediately. So the Governor convened a panel. I think there was twenty-two people on this special panel that the Governor convened. And they deliberated the summer of '95 and probably until about Christmastime.

Panel considers development of local funding package for Plan 6

Storey: '95?

Morton: '85. '85, I'm sorry. Ten years apart here. But in that 1985 time period, they deliberated on, "What are we getting for what we put up? How much is reasonable to put up? How much does it reduce CAWCD's obligation? What could we reasonably expect the Federal Government to do with regard to implementation?"

I think that the thinking at that time was that if the state of Arizona, through various member entities accelerated the appropriation process, the ultimate construction would accelerate as well and what benefits would they get out of that kind of acceleration. In other words, in the case of Waddell, they'd be able to sell power much sooner, therefore, there would be a net benefit to them putting up some front-end capital.

So the Department of Water Resources and CAWCD provided staff support, this political body, I would have to say it was, because it generally represented elected officials, it was represented by elected officials, the Mayor of Phoenix, the Mayor of Glendale, the Mayor of Mesa, the Chairman of the County Board of Supervisors. Many of the representatives to this Governor's task force or council were elected officials from the three-county area. Then there

were a few, I think there might have been one environmental person, one person who represented the Sierra Club, maybe. But there were business development interests, the mines, agriculture. So there were sector individuals representing various sectors of the economy and then there were a few public individuals, one that represented taxpayer groups, one that represented a consumer advocacy group, one that represented environmental groups at large. So the Governor tried to get a cross-section of people involved in this effort.

Over a period of time, they began to see that if just left to its own devices, Plan 6 probably wouldn't come into being for twenty years, if the Federal Government was going out and seeking appropriations at a \$50-million-a-year level and inflation would eat into that. It would take twenty to twenty-five years to totally implement Plan 6. So if they could shave that back to ten years, let's say, by supplementing the appropriations, then, you know, there was an obvious benefit to the community at large. So they came to that realization and then it was a case of, you know, how much are you willing to put up, and then the other side of the coin was each entity that they went to to say, "How much are you willing to put up, city of Phoenix?" The obvious response was, "Well, I'll be willing to put up in proportion to my benefits. Now, what are my benefits?"

So they had to go through that kind of a process to define discrete benefits for everybody who was going to be a potential contributor to this pot of money that was going to be made available to supplement appropriations and get Plan 6 built. Well, this whole process took about a year and a half, and we executed an agreement in late '86. Basically the big contributors, CAWCD agreed to

put \$175 million cash. They agreed to sell some bonds, come up with \$175 million cash and apply it against the construction cost of New Waddell Dam. Salt River Project agreed to pay 15 percent as they were required to under law for the safety of dams repair work at Stewart Mountain, Roosevelt, and 15 percent of the safety of dams allocation at Cliff Dam. Because Cliff Dam would have made, had it been built, would have made Bartlett and Horseshoe, two Salt River dams on the Verde River, Salt River Project dams on the Verde River -- it would have rendered them safe under the Reclamation safety of dams criteria.

There was some substantial flood control benefits that would have been realized on the Salt River as a result of the dual construction of Roosevelt and Cliff Dam. While flood control is nominally a nonreimbursable function within the government, flood control is provided by the Corps of Engineers and Bureau of Reclamation and Soil Conservation Service, normally the capital cost of flood control is nonreimbursable, but because of the relatively large level of flood control that was being provided and the fact that there were some land enhancement benefits that were going to benefit the whole community, Maricopa County and the Maricopa County Flood Control District agreed to pay a share of those costs. At that time it was computed to be about \$60 million. But there was a formula, and it was derived with a formula based on the amount of benefits that were received. Subsequently, the loss of Cliff Dam substantially reduced the benefits, and the actual amount that the Flood Control District has contributed has been reduced from about \$60 million down to about \$11 million. But the amount to be provided up front was fixed as a percentage, there was a

formula, and so the total had been reduced as a result of the change in the plan.

The six valley cities agreed also on a formula that was a measure of their benefit that they would get out of the new water that would be generated by 300,000 acre-feet of new conservation storage in Roosevelt and an additional 200,000 acre-feet in Cliff. Also, similar to the Flood Control District, the total amount they put up has come down as a result of the subsequent agreement to delete Cliff Dam from Plan 6.

The city of Tucson wanted to be involved, but they didn't want to put up any money, and so they were signatory to the agreement, but were not a financial partner in the partnership.

The Maricopa Water District also wanted to be involved primarily because they owned the old Waddell Dam, they were the constructor and the owner of the Waddell Dam that existed that was going to be inundated by the New Waddell Dam, and they wanted to make sure that if somebody built New Waddell Dam, they were participatory in all of the decisions that went into that construction, but they felt like they were owed some money, not that they should be contributing to it, because they weren't going to get anything out of it. They were going to be eliminated, so to speak. Their old dam was going to be breached and they were going to have to deal with the Federal Government and CAWCD on the operation of the new dam and rely on some third party to operate that new dam to provide the benefits that they already had from the existing dam. So they became a participant in the agreement, but only to protect their interest, not so much as to put up some money.

The state of Arizona and the General Fund of the state of Arizona also contributed, I think it

was about \$3 million was appropriated by the state legislature. So the state of Arizona as represented by the Department of Water Resources was also a participant, a signatory. I think that was about it.

In total, the offer amounted to almost 30 percent. It was about 300 million, a little more than 300 million, and the total estimated cost at that time was a little more than one billion, so it was roughly 30 percent. And going into that, they made an offer and it was about \$28 million less than what was ultimately agreed to, and they made that offer and they made it to the Secretary. The Secretary, through Jim Ziglar, came back and said, "Well, it's a nice offer, but it's not quite enough. We're going to need a little bit more to justify this to OMB." And CAWCD squawked, but they finally agreed, and I think the last 28 million CAWCD went from 150 to 175, a 175 million, and the state of Arizona kicked in the last 3 million. So Jim Ziglar sold the agreement on an additional \$28 million. I suspect he would have been very happy to get what the initial offer was, but they decided that they could get a little bit more, make the state of Arizona sweat a little bit more, so they did a little arm-twisting in the last month and came up with an additional \$28 million worth of income for Plan 6.

Then as we discussed, within a year the Environmental Coalition was suing us to delete Cliff Dam, and Congress told us to take Cliff Dam out and they wouldn't appropriate any money for Cliff Dam. So then we had to go back and do a supplemental agreement on the '86 agreement, in '87 we had to do a supplemental agreement to say, "Okay, you guys agreed to put up all this kind of money for this plan. Now it's this plan minus Cliff and, you know, the net benefits go down and your contributions are also reduced accordingly."

Local sponsors offered about 300 million, 30% of the cost of Plan 6 as local support

Local sponsors develop another 28 million to support Plan 6

So in '87 we had to negotiate a supplemental agreement, a supplemental Plan 6 funding agreement, and we've operated in the past eight years under that agreement, the cities, Flood Control District, state of Arizona, Salt River Project, CAWCD have all contributed in accordance with the agreement.

We're about 252 million -53 million, I think, is what we've got from them, total cost, the costs of Waddell and Roosevelt went up, as one might expect. Cliff Dam was eliminated. The original estimated cost for Cliff Dam at 1985 price levels probably offset the increased costs associated with New Waddell and Roosevelt. So we still have a billion-dollar Plan 6, one fewer dam, but a billion-dollar Plan 6. Money doesn't go as far as it used to. Instead of four dams, we got three. So the local economy picked up about 25 percent of the current constructive cost of those three dams and the Federal appropriations paid for about 75 percent of the cost.

Why a supplemental agreement was negotiated for Plan 6

Storey: I can see where if I were responsible for one of these groups and contributed the kinds of money we're talking about, that I would feel that I was entitled to part of the power revenues. Did that ever come up?

Power as a benefit of Plan 6

Morton: Everybody wants a piece of the power revenues, generally speaking. No, actually, going in, everybody had carved out, all of the entities that had a stake, had a financial stake, had carved out their own turf, I think, and had sold -- I mean, they are all public entities, so they all had to go to the electorate. I mean, they couldn't just do this in a smoke-filled back room. This was open, above board, all the meetings were public forums and they were well-covered by the media, so

Each local participant which supported Plan 6 had carved out its expected benefits fairly clearly

everybody had an understanding of what they expected to get out of Plan 6 for the money that they were putting into it. I didn't hear anybody saying, "Well, we want to get a piece of the benefits of the power, therefore we're going to throw some more money at New Waddell and attempt to trump CAWCD's offer." I didn't hear that. There was just a general understanding that what CAWCD expected to get out of it was some early power benefits and the revenues from those power benefits, if Waddell got done sooner.

I mean, that was clearly something that they were interested in. They had a resource, namely the entitlement in Navajo, that they could influence by how they pumped the water from the Colorado River. The value of the power was a function of the operation, or at least the incremental value of the power, was a function of the operation. CAWCD controlled the operation of the water delivery system. So they were a natural entity to deal with Waddell Dam and to make an offer pursuant to the benefits that would be generated by the early construction of Waddell Dam.

Similarly, SRP may have had some intrinsic interest in power because they are a producer and a consumer, but their primary interest was their existing dams and the safety of those existing dams, and there was a law in place that clearly stated that they were obligated to repay the government at least 15 percent of those costs. So that was a natural for them to pay the 15 percent associated with the safety of dams repairs.

The cities were in it for the benefits to be derived from water conservation, surplus waters off of the Salt and Verde Rivers that could be conserved and yielded out of Roosevelt and Cliff Dams. So that tended to be a natural for them. They, with the exception of Mesa, who does have

a municipal utility, sells power within the city of Mesa, none of the other cities, the six valley cities, is in the power marketing activity. So there was really not a lot of interest in dabbling in commercial power. Their big issue was, "How can we supplement our CAP entitlements with additional surface waters from Salt and Verde River watershed?"

The Flood Control District of Maricopa County, obviously their interest was in providing flood control. If they couldn't get flood control early on from flood control storage at Roosevelt and Cliff, then they were going to have to provide funds for channelization. They were going to have to provide working with FEMA, provide funding for damages that would occur. The county was going to be obligated for repairing roads and bridges as a result of damages in intervening floods. So you know, the county philosophy was, "Boy, the sooner we can get this flood control established on the upper watershed, the sooner we will reap the benefits of having to repair all this flood damage stuff that we've traditionally had to deal with every two to five years."

So there was some rationale for them staking out this piece of the puzzle and making an offer on just that one piece. I guess, generally speaking, once the stakes had been laid out on the table, they kind of sorted themselves out like a domino game or crossword puzzle and they all kind of meshed together, given a little time to move the pieces around. But generally, everybody acknowledged what their respective stakes were, and it was just a case of how much are you willing to pay for this piece of the puzzle.

Storey: Is it the Maricopa County Irrigation District? Is that the right term? The owners of Waddell.

Morton: Maricopa Water District. Actually it has a legal name of the Maricopa County Municipal Water Conservation District Number One. But their common name is the Maricopa Water District.

Storey: The Maricopa Water District was a public entity, is that correct?

Morton: Yeah, they're a public entity, but they're organized under state law, under an old part of the state law, and they are not elected at large or --

END SIDE 2, TAPE 2. JULY 16,1996.

BEGIN SIDE 1, TAPE 3. JULY 16, 1996.

Storey: [This is tape 3 of an] interview by Brit Storey with Larry Morton on July the 16th, 1996.
In relationship to population --

Morton: Their Board of Directors is elected based on acreage. So instead of one man, one vote, it's one acre, one vote. So the big landowners like Boswell Farms that own 8,000 acres in a 15,000-acre irrigation district have over 50 percent of the vote.

Storey: What was going to happen was that we were going to build a bigger dam in front of the old Waddell Dam.

Morton: Correct.

Storey: What say did the Maricopa Irrigation District have and what was done in order to make this a relationship that would work?

Morton: You know, I mentioned early on that Ed Hallenbeck left orders with his secretary that if Larry Morton ever called him, be sure and round him up real quick because there was a real problem brewing. To the best of my recollection, the Maricopa Water District and I got into a problem, and I think that was the only time I screamed for some help from Ed during that year or so hiatus when Ed was the Acting Regional Director and Bob Towles had yet to come on board.

I think it was late May, just before Memorial Day. The general manager from Maricopa Water District, a fellow by the name of Joe Falbo [phonetic], called me and he says, "I've got a Board meeting next Tuesday and, you know, we've talked a lot about Plan 6, we're about to sit down and negotiate an agreement. We want to be party to that agreement, and the Board would like to know more about how you intend to protect Maricopa Water District's existing entitlements. You know, we have physical plant structure, we own the dam, we have the reservoir under the dam, we have revenue-producing properties that you're going inundate with water. Would you come out and explain to the Board how you're either going to compensate us for it or protect our rights and interests?"

And so I said, "Well, I don't know a whole lot about this. I'm kind of the new guy on the block, but I'll consult with my staff and I'll be happy to come out and talk to the Board."

Well, they have a relatively small board room, at that time, at least, it was probably about sixteen feet long by about nine feet wide or so, fairly narrow. With the chairs and the table in the board room, you had to kind of sneak around behind the chairs to get to some of the seats over on the other side. It has one door up in one corner

*Negotiations with the
Maricopa Water District
regarding New Waddell
Dam and water rights*

of the board room. I walked in and they said, "Go sit down over there at the head of the table, Larry." So I did. And, of course, that means that the Board members came in and filled the other chairs and so there was really no way to get out. To be honest with you, after I told them what I did, I had fear for my life that I was going to get out of that room that day, because they asked me specifically, "Well, how do you intend to protect our interests?"

I said, "Well, I'm advised that we're proposing to condemn your interests. We will deposit with the court one dollar and we'll let the court determine the value of your interest and then we'll pay for them." And that's what my realty people had told me is the general strategy. I had consulted with the Solicitor on this issue, and the Solicitor assured me that this was probably the best strategy because nobody had ever valued, you know, done an appraisal and tried to value a dam or the water right that was associated with that dam.

Storey: So we were going to condemn the water right, also?

Morton: Well, that was what I was told and that's what I told them, and I was there all by myself. The Board at that time consisted of three members, there are still three members, but at that time there were two older fellows, they were probably both close to seventy, I would guess, in age. They had probably farmed for their whole life in the Maricopa Water District, you know, fifty years of farming. They looked like the traditional Arizona farmer with a sweat-stained band around their cowboy hat and a western shirt, snap-button shirt, cowboy boots, and it was very obvious that those

fellows had been, you know, practitioners of the farming art for a long time.

The other fellow happened to be a vice president of the Del Webb Corporation. Del Webb is a very large landowner in the Maricopa Water District, part of Sun City West and Sun City is in the Maricopa Water District. So he was the vice president and he was kind of casually attired that day, but I've seen him in his Armani suits and everything else.

But he directed the conversation and asked the questions, and I tried to explain, you know, our philosophy under Reclamation law if we build a dam and create a reservoir, all the lands underneath that reservoir have to be in fee title to the United States. I mean, that's just the law, we have to acquire fee title. And the process for acquiring fee title is, you know, you do an appraisal, you get the appraisal approved, you make an offer of not less than the appraised price, and you negotiate, you bring in any other externalities that may influence the price, and you try to reach an agreement. If you can't reach agreement, at least in the case of the Central Arizona Project, Congress had told us we had the right to condemn those lands. And that, philosophically, was the bottom line, if we couldn't reach agreement on price, we would condemn the lands.

But since we knew that there was more involved than just the value of the land and the value of the dam, namely, the fact that they had a water right and a right to operate the inflows of the Agua Fria River to create a net supply of water, we would provide them water at CAP cost to make that up, and, you know, we'd condemn both the property right and the water right. Because the water right is property right, too. But

the real property versus the water right would be two different situations, and we didn't have any expertise in valuing that, so rather than running around trying to negotiate a price, we concluded that probably the best approach would be to let the court decide based on the evidence submitted to the court.

Well, that was totally the wrong thing to be telling these fellows, because as the fellow from Del Webb Corporation, and I kind of went through this scenario and I tried to respond to his questions and he kept drawing me out on, "Well, what are you going to do about construction? What are you going to do to make sure that there's hydraulic continuity between the water behind our dam and the water behind your dam?"

"Well, we're going to breach your dam," you know. Very matter-of-factly that's all I said, you know.

"What would be the process?"

"Well, after we get title to your dam, we'll just cut a big hole in it or blow it up." I didn't give a second thought. This was all a fairly practical approach to creating a new reservoir. There didn't seem to be any -- but there was a personal attachment here for these other two Board members. You know, their families had helped to build that dam. It was like, "You're going to blow up our dam? You're going to cut a hole in it?"

You know, I was there for a good three hours and those poor -- the two other Board members, they got red in the face and their hands were clenching, and I'm observing all of this body language going on. I knew I'd said something wrong. The general manager was sitting at the foot of the table closest to the door. Of course, I was the farthest away from the door, and he had this big smile on his face and I knew I had been

set up. (laughter) There was no way that I could retract what I had said.

But the general manager, Mr. Falbo, was a very astute individual, and one of the Board members, one of the farmers, he finally couldn't hold it back anymore, and he gave me holy hell for what I had said. You know, I was subjected to a tirade of about fifteen minutes there where he told me in no uncertain terms that Reclamation's approach was entirely unsatisfactory, that they had a personal attachment to that dam, that water was for fighting in Arizona and whiskey was for drinking, and water was for fighting and there was no way we were going to get their water rights and no amount of money was going to be sufficient to compensate the Maricopa Water District and the individual landowners for their water rights. I can't even remember everything that he told me, but he made it very clear, in no uncertain terms, that the strategy that I had laid out on the table, based on the inputs that I had gotten from Reclamation staff, was inappropriate and just not in the cards. That was totally the wrong approach to be taking.

And it was then that Joe Falbo, the General Manager, kind of stood up behind his chair, walked behind his chair, and, "Well, you know, Larry, we thank you for coming today, but it's obvious to all of us here that you need to adjust your approach, and we will expect to negotiate all of these issues in the greatest detail necessary to protect the interests of the Maricopa Water District."

I went back to the office and called Hallenbeck and said, "Well, I put my foot in it this time. We need to go back and make amends," and we did. Ed came down a couple weeks later, early June, and we went back out to the water district

and sat down and said, "Yes, you're right, we do need to negotiate with you. There are certain values and interests that are not compensable. We have to acknowledge that. But here's what we have to have. We have to have free title and so on and so on, and we'll negotiate."

Fortunately for me, Bob Towles came in and bore the brunt of most of that negotiation. I mean, we got it under way, but we hadn't signed the contract yet on how we would compensate Maricopa Water District until Bob got in there, and I think that he was very instrumental. When Bob showed up as a Project Manager, he was very instrumental in putting the icing on the cake and getting closure on that agreement. We probably started in like August of '85 and inked the thing probably in August of '86, I think it was. So it was a good year of hard negotiations, and Bob Towles came on the scene, I think it was in May of '86, and so probably we were at about an impasse, and he got us off dead center and got the last 10 percent done. Ninety percent of the problem was readily solvable, it was the last 10 percent was the hard part, and Bob got us through that hard part after he came on board.

Storey: So what were the agreements?

Morton: Well, the agreement was based on what we referred to in the contract as the replacement water supply system. It basically provided, in kind, the same benefits that Maricopa Water District would have been entitled to or would have the potential to obtain with the old dam. So there's 155,000 acre-feet in the new reservoir that's equivalent to what they had in the old reservoir. They have call-on operating. They can't physically turn the gates and twist the valves and so on because that's CAWCD's job with the new dam. But, they can

direct CAWCD on how to manage that 155,000 acre-foot of storage that's Maricopa Water District's.

There was an arrangement where Maricopa Water District, if the flows on the Agua Fria are such that there's some vacant space, if they're in drought conditions or less than normal conditions of runoff on the Agua Fria River, CAWCD can use that space. But if a substantial flow of water comes down the Agua Fria and there's a spill, that's CAWCD's water that got spilled, not Maricopa Water District's.

So this replacement water supply system includes storage space, it includes all of the infrastructure that they had in place there at the old dam. They had an operation and maintenance facility. They had -- what did they call it there? Basically it was a board meeting room. Lodge, that's what they called it, the lodge. They had a lodge, they had a boat-launching ramp, they had a caretaker facility, they had two damtenders that lived out there, so they had housing for the caretakers. They had a building on the other side of the dam for one of their security personnel. So all of those replacements were part of the water supply system.

With the old dam, the original dam, they had the ability, they did not have a hydro-generation plant there, but they had the ability to create a hydro plant. So our design involves a "Y" in the discharge line. The discharge line that goes through the Waddell pump generating plant has a "Y" in it and there's a blind flange bolted on the "Y", so at some future date they can come in, if they choose to, if they find that it's economically to their advantage, they can come in there and put a generating unit on the New Waddell Dam

penstock and generate power. But we provided the "Y" at no cost to them.

Storey: And they're providing the acre-feet to run that?

Morton: Oh, yeah. They would have to provide the water. It would have to be their water that would actually generate the electricity. But of course, we have created additional head. I mean, their dam was a 160-foot high and ours is 300 feet high, so they get a little more head induced there. But of course, I don't think we got any credit for that additional head. Of course, that would all be part and parcel to some future installation that they would potentially put in.

But they insisted that all of these new facilities, replacement facilities, be provided to current standards. This is not too dissimilar from what we have to provide today. In other words, if we relocate a road to accommodate construction, we have to meet current standards. You know, many roads were built in the thirties and forties and they may be twenty-foot-wide road with two-foot shoulders and current standards are twenty-four-foot-wide road with four-foot shoulders, so you have to build a better road than was there. The dam tender's houses had been built during construction or immediately after construction in the twenties, so the dam tender's houses were sixty years old. Now they've got brand-new houses. The lodge initially was probably the construction superintendent's house. It was larger than the dam tender's houses. It was just a house, but they called it their lodge and it had like four bedrooms. They said those were all meeting rooms. Anyhow, and they now have a lodge that's about the same square footage, but it's set up as what you would call an industrial lodge. I mean, it's

built to long-term standards as opposed to the former somewhat dilapidated conditions.

So they've got everything that they had before. Boat launching ramp. They had access to the water. Well, today our standard says you build nothing smaller than thirty-six-foot-wide boat ramps. I mean, their old boat ramp was probably twelve-foot wide. It was dirt, this one's concrete. I mean, you know, everything kind of got upgraded. But it's consistent with normal practices that you meet today's standards on replacement facilities, and that's what we did with Maricopa Water District. They have a very nice operation.

Down below the dam they had 225 acres of fee land and it butted on the lake. We couldn't give them land on the lake because of the fluctuation in the lake, and Reclamation law, we had to protect the liability of the Federal Government. We had to take that land in fee simple. So what we've done is, we've given them 225 acres on the left abutment and then we've given them an easement over the contiguous lands that slope down to the lake from the 225 acres. So they've got 225 acres of fee title above the high-water mark and then an easement over all the sloping lands that go down to the lake front at whatever elevation the lake is at. So sometimes the water surface is very close to the 225, other times when the lake's drawn down, it may be a half a mile across the easement to the water surface.

So they've taken that 225 acres today and the county's put in a new road because the area, the Lake Pleasant area, which is the reservoir for New Waddell Dam, is operated as a recreation, as a park, by Maricopa County as our concessionaire. So they've built an access road that goes right by

this 225 acres and, in turn, Maricopa Water District has several roads that come off of that. They've developed some of the property they've leased out for boat sales, for boat storage. All of the infrastructure associated with recreation, everything from T-shirt sales to baseball caps to yachts, you can buy out there now. So they've really brought in some commercial operations. They've really enhanced the value of that land that was part of the deal. And, in turn, we got the reservoir and a dam that we breached and the land downstream from the dam that Maricopa Water District had that we needed for construction, operation and maintenance, we acquired that as part of the deal.

Storey: Obviously not quite the way the staff and the solicitor had recommended.

Morton: No. (laughter)

Storey: How did they respond?

Morton: Well, I put the burden back on them and, in fact, until Bob Towles showed up, I kind of chaired the negotiation with the general manager over how we were going to compensate them and in what manner, but I made my realty staff and the Solicitor's office participate in that negotiation. So while they didn't get the immediate impact I got facing two red-faced farmers who had a personal interest in the property, while they weren't subjected to that, they did get subjected to a lot of fist-pounding and recriminations from the general manager of the District while we negotiated. They were part and parcel to the negotiations.

Storey: We replaced facilities. Did we also have to make a cash payment of any sort?

Morton: Yeah, there was a cash payment. There were two kinds of payments. One was because of the way we constructed New Waddell Dam, we had to dewater the upstream area, both upstream and downstream. We were building the dam right across between the District's facilities. They had the storage dam and then the access for the new dam and then downstream was their diversion dam, which put the water from the storage dam into their canal system. So we were building a dam, the New Waddell Dam, 300 feet high between their storage dam and their diversion dam. So we had a major interruption of their operations.

When we were constructing the cutoff wall and the initial stages of the keyway and the initial stages of the fill, we wanted to minimize our cost of seepage into the -- we had a well field that dewatered that construction site so we could do it in the dry. The keyway and the cutoff wall, we wanted to construct that in the dry. In order to do that, we had to dewater that whole area. We put well points in to dewater it, but with this diversion dam sitting there, there was always the lake, the small lake that was formed by the diversion dam. So we asked them to evacuate the diversion dam.

So in order to evacuate the diversion dam, we had to provide them with water at no cost. So the bottom line is, the water district got compensated with replacement water, got compensated with lost water, because in certain instances, water would come down the Agua Fria River and we'd have to bypass the construction site because we didn't want it to adversely affect our dewatering program.

Storey: So that's water they could have stored?

Morton: Water that they could have stored that they didn't get credit for, so we had to compensate the Water District for lost water. We made a -- I'm going to say -- I can't remember exactly what it was, but it was around a \$2 million cash payment to cash out. So there was a replacement water supply system, plus replacement water, plus lost water, plus a cash payment of about \$2 million was the bottom line, and we're still having to deal with it. The lodge that we built is now undergoing some differential settlement. We're going to go out there and repair some of this damage, kind of a latent defect situation in our construction, we'll have to repair. We had some old signs that pointed the direction, Maricopa Water District this way, you know, that were probably a sheet of plywood with a painted arrow on it and "MWD" scrawled on it, and now they want a nice stone-based thing.

And, in fact, our own regulations don't allow us to put up these little jury-rigged signs anymore. If you build a sign on Reclamation property, it's got to meet a bunch of standards. It's got to be legible for such and such a distance, you know. It's got to not conflict with the surrounding environment. It can't be an eyesore. It's got to blend in with the terrain, etc., etc. So Dennis is currently dealing with the Maricopa Water District on little things like signs and differential settlement and the air-conditioner pad at their lodge and stuff like that. I mean, really big important issues, but issues we have to deal with, nonetheless.

Storey: You said they were on the left abutment. Do you figure left looking downstream or looking upstream?

-
- Morton:** Yeah, downstream.
- Storey:** So they're on the east side?
- Morton:** Right.
- Storey:** Oh, okay. Next question. You mentioned that we provide the water at no cost.
- Morton:** The replacement water.
- Storey:** The replacement water, right. However, they had O&M costs on their dam before we breached it.
- Morton:** Right.
- Storey:** And now CAWCD has O&M costs?
- Morton:** Right.
- Storey:** And I don't know, maybe other costs. How was that worked out and was CAWCD involved in any negotiations?
- Morton:** Yes. They weren't involved in negotiations, because at that time it was going to be a Federal cost of the O&M, and we kind of stood in CAWCD's shoes in that time, in that era, and it's only been since 1990 or so -- well, actually, the government's still paying the O&M. CAWCD won't get New Waddell Dam until September of this year and then it will become their cost. So we are still in what we call "O&M during construction" and so the government is paying the full cost of O&M for the dam.
- That's another issue of litigation. It was our perspective that CAWCD was realizing some revenues and those would have been Federal

revenues since the dam has not been turned over to them in this interim period between '92 when the dam was essentially complete and '96 when it's formally turned over to CAWCD, there's three or four years of revenue that they get.

Storey: Specifically electrical revenue?

Morton: Well, but we also filled the reservoir with Colorado River water at a Federal cost, and it's our judgment that that water had some value, as well. It cost us \$35 an acre-foot to put that water into Waddell Reservoir. We put it in there to --

Reclamation and CAWCD dispute whether CAWCD must pay costs of water pumped into New Waddell Dam by Reclamation

END SIDE 1, TAPE 3. JULY 16, 1996.

BEGIN SIDE 2, TAPE 3. JULY 16, 1996.

Morton: We put the water in the reservoir, 800,000 acre-feet, roughly, of -- well, it wasn't all Colorado River water, 200,000 acre-feet of Agua Fria runoff plus another 600,000 acre-feet of Colorado River water was put into storage behind New Waddell Dam to test the dam embankment, to ensure that the embankment was correctly constructed, that there was no adverse seepage or any other deficiencies in the construction of the earth embankment that forms the dam.

So we put the water in there, and then we notified CAWCD that any water that they took out and delivered was going to be at the government's cost of putting it in there. So if they delivered water out of storage, it was going to cost \$35 an acre-foot for the delivery of that water, since that's what we'd invested in it. Their position was, "Well, it's all project water, irrespective of whether it's coming from the Colorado River or it's coming out of storage. We'll just take it out of storage because it'll save us thirty-five bucks an

acre-foot. We don't have to pump it 1,200 feet from the Colorado River."

Well, that's now in litigation and the perspective on that was, "Okay, you submit to us a bill on how much you spent on operation and maintenance at Waddell, we'll deduct it from what you owe us from the water you release out of storage, plus an extra \$2 an acre-foot for the incremental benefit of the energy you produce. So we'll charge you thirty-seven bucks an acre-foot, thirty-five for the water and \$2 for the energy, you tell us how much you spend on O&M, and then write us a check for the difference. You can manage the money, you can manage the O&M, but we expect to get paid for the difference between the O&M cost and the amount of water you release."

And they said, "Thank you very much, not only aren't we going to give you the \$37 an acre-foot, we're going to bill you for the O&M."

Well, we said, "You can bill us, but we ain't going to pay you." So that's where we stand right now. So there's about four years of monthly charges for O&M that are now aggregated in this lawsuit that says, "This is how much the government should have paid us," and on the government's side there's another series of spreadsheets that say, "This is how much the District, CAWCD, should have paid us for the water they released, the government water that they released out of storage, less what they spent on O&M equals what the net bill should be." I'm not sure how much that is, but it seems to me it's several million dollars that they owe us, in our view at least, but the court will have to decide that issue, as well.

Storey: Why are they "O&Ming" New Waddell, and I gather have control of the power plant, if we haven't turned it over to them?

Morton: Well, it goes back to this concept of the operation and maintenance agreement that we entered into back in '84.

Storey: With Mr. Hallenbeck?

Morton: With Ed Hallenbeck, that as construction is completed on the facilities, we will allow CAWCD to stand in our shoes. In other words, rather than Reclamation hiring staff to actually operate and maintain the powerplant and the dam, CAWCD will ultimately take it over. The cost of O&M during construction is a Federal cost, but it's cheaper and it's easier to let CAWCD do it as our contractor, and so that's what we're doing. It's just is that there's no money changing hands right now because of this impasse on credits and debits.

But coming back to your question about Maricopa Water District, at the time the '87-'88 time period, or '86-'87 time period when we entered into this contract with Maricopa Water District, the CAWCD was not yet acknowledged as the operator. The amended repayment contract with CAWCD that was executed in '88, I believe, is the vehicle that designates CAWCD as the operator. So at that time, when we were negotiating with the Maricopa Water District, we worked out the arrangement for compensation between the United States and Maricopa Water District. And then we assigned that part of the contract, or will assign that part of the contract, as part of the transfer notice that we'll give CAWCD in September of '96. We'll assign that responsibility to collect from Maricopa Water

How Maricopa Water District pays its share of O&M on New Waddell Dam

District their share of the operation and maintenance of the new dam.

Storey: So that's the way it functions, then, that the Maricopa Irrigation District is responsible for what, a proportional share of O&M?

Morton: Well, it's for the dam only and it doesn't involve the powerplant or the switchyard or the feeder canal or any of that. It's just on the dam itself, yeah. And it's a proportional share. Actually, it's a weighted share, is the way it works out, because it's a function of the amount of water that goes through the penstocks and/or the amount of water that goes over the spillway.

So CAWCD, for example, pumps into the reservoir and then it's released out of the reservoir, so CAWCD gets hit twice because the water's moving both directions. The Agua Fria water only moves in one direction -- downstream. And then the amount of water that goes through the spillways also is -- you know, all of these are measurable quantities so that they're relatively easy to calculate.

Storey: Now, it was 155,000-acre pool, I believe. What happens if the Agua Fria doesn't produce 155,000 acre-feet?

Morton: Well, it's a water accounting entitlement, in other words, and there is agreement on how the evaporation and seepage, the bank storage, will also be treated. So it's purely a water accounting that says you've got this pot of a 155,000 acre-feet out of 800,000-acre-feet of total storage, and I think there's four gauging stations upstream on the watershed, and so the Castle Creek and Boulder Creek, and I can't remember the other creek,

Water accounting at New Waddell Dam

anyhow, and the Agua Fria River, there's gauges on each of those four principal tributaries or watersheds that run into the reservoir. There is a formula for each one of those gauges on what the gauge shows as inflows versus the amount of accretion to storage that takes place. So that's credited to the account, and then the account's debited for its proportionate share of evaporation, seepage, bank storage, and then it's debited for whatever's released to their canal, to the lower lake, actually, because they still maintain -- there's another part of the replacement water supply system. We had to put a diversion dam in that would store the same volume of water. So the New Waddell Dam, the toe of the New Waddell Dam, encroached into the pool of the diversion reservoir, so they lost storage in the diversion reservoir, so we had to increase the height of the diversion dam to provide them the same volume, about 1,100 acre-feet of volume. So we had to build them a new diversion dam on top of the old diversion dam.

So the water is released through the outlet works to the diversion dam reservoir and then divert it into their canals. So it's measured at the river outlet works, the actual release. Matter of fact, Maricopa Water District, that was another thing they insisted on, they wanted control over the water releases to the river. So there's a small pipe inside of the river outlet works and they can operate the valve on that small pipe to release their irrigation releases or their water supply releases. So they have a damtender and he can go out there and open and close the valve on that pipe that's internal to the river outlet works. That was another thing that they wanted. They didn't want anybody else turning on or off their water. They wanted the control of the water, so we got them a control.

Some day we may be in a flood and we may have to put 6,000 second-feet through the river outlet works, in which case their control won't be worth anything, but for normal day-to-day operation when they're running fifty or sixty or eighty cubic feet per second, it's no problem.

But CAWCD, of course, wants to know how much water they're releasing. So there's a gauge and an accumulator and they can go down --

Storey: That measures right over here in the control room I'll bet.

Morton: Right. So CAWCD does the accounting and they provide the accounting every month to Maricopa Water District and to us, and Maricopa Water District can go get the G.S. records on the inflows and apply the formulas for each of the gauges. We haven't had a problem. We've been operating this way now for over three years and it's a very -- what do I want to say? Jury-rigged process. There would have been a lot better ways of doing it, but it complied with their desires to control and to measure their water entitlements, water rights.

Storey: So it's possible that -- it's Lake Pleasant, isn't it, behind the dam?

Morton: Yes.

Storey: Might be completely full, but they might not have their entire 155,000 acre-feet stored?

Morton: You're absolutely right.

Storey: What about conversely, what if they get a flood, can they store more than 155,000?

Morton: Well, it's like I said, it's a water accounting, and when the bucket's full, it spills out of the bucket. So long as the reservoir is not full, it accretes to storage in the CAP part of the entitlement. In other words, we went out to Department of Water Resources and secured a right to store surplus flows of the Agua Fria River. So to the extent Maricopa Water District lost its ability to control, in other words, their storage space was full, and under historical conditions, that inflow would have spilled, it now, from a practical sense, spills into CAP storage rights.

Now, as you questioned earlier, that could all be filled up with Colorado River water, in which case the whole reservoir would spill. There would be an outflow over the spillways. But generally speaking, CAWCD is not going to -- if there is a good potential, if the forecasts in the winter of the year indicate a good potential for a runoff on the Agua Fria River, CAWCD is not going to fill it all the way up with Colorado River water because they're going to be anticipating that Maricopa Water District's storage will spill and there will be some accretion to CAP storage from locally available runoff. So they're not going to, in January and February, they're not going to pump water from the Colorado River at \$35 an acre-foot and fill it up to the top. They're going to allow themselves some contingency in anticipation that there will be runoff.

Storey: Well, let's just follow this intellectually a little further, anyway. Say the reservoir was full, Maricopa Water District did not have its entire 155,000 acre-feet, water came down the Agua Fria causing a fill. But am I correct in thinking that what's going on is that Maricopa Water District's allocation of water is increasing because there's inflow?

Morton: Yep.

Storey: And CAWCD's is flowing over the spillway? I think that's what I heard.

Morton: That's correct. CAWCD would choose to fill the reservoir with Colorado River water and, let's say, Maricopa Water District had 100,000 acre-feet in storage and they have a 155,000 acre-feet of creditable storage. The first 55,000 acre-feet that came down the Agua Fria River would be Maricopa Water District's and it would displace 55,000 acre-feet that CAWCD had pumped, you know, 150 miles across the desert and stored it in behind New Waddell. (**Storey:** OK.) Then after Maricopa Water District had their entire 155,000, then the next inflows off the Agua Fria would spill, and that would be Agua Fria's spills, not CAWCD spills.

Storey: One last question for today. I noticed that when you were in charge of the distribution system, all of a sudden we're talking about cost sharing. I think it was 20 percent paid by the water users. And then, of course, we're talking about cost sharing for the implementation of Plan 6. Was this something new during the Reagan Administration?

*Cost sharing as a means
of reducing the deficit*

Morton: Yeah. Up until very early in the Reagan Administration, there had been no requirement that I was aware of for cost sharing. That was a new policy that was instituted in 1981 or so, I guess.

Storey: Did you get a sense of what it was for? Was it to reduce the cost to the Federal Government? Was it to sort of validate the local need or what? Or a combination?

Morton: No, I think it was to reduce the deficit. It was a deficit-reduction methodology more than -- I think that the local interests had validated their need through their repayment contracts, but this was an opportunity to reduce or levelize the appropriation requests and cut back in times of deficit spending. Because the whole genesis was to supplement appropriations. I mean, that was the story everybody was spouting at that time, was, "We want cost sharing so that we can supplement appropriations." Well, that just meant not supplement so much as, if we get 20 percent local, we can still work at capability, but then we only have to get 80 percent appropriated, so that'll cut back on deficit spending or make money available for more important things.

Storey: Okay. Thank you. Well, we've gone three hours and a couple of minutes, I guess. I'd like to ask you again whether or not you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Morton: Yes.

Storey: Good. Thank you.

END SIDE 2, TAPE 3. JULY 16, 1996.
BEGIN SIDE 1, TAPE 1. JULY 17, 1996.

Storey: [This is Brit Allan] Storey, Senior Historian at the Bureau of Reclamation, interviewing Larry Morton, the Assistant Area Manager of the Phoenix Area Office, in his offices in Phoenix, Arizona, on July the 17th, 1996, at about nine o'clock in the morning. This is tape one.

I believe we had gotten to the point that Mr. Towles was about ready to come on board, perhaps. Was there anything else that stands out

that we haven't talked about during your year as Acting Project Manager?

Morton: Well, I think we've covered, probably, the highlights of that year. It was a very educational year, as far as I was concerned, but I think I managed to keep my head above water. I think probably the outcome of that was a rather substantial bonus that Mr. Hallenbeck was instrumental in getting for me, a \$5,000 performance award and bonus, so while I was working at it I really didn't even think about it, but it was quite a shock to get that kind of monetary award, reward, as a result of my efforts over that year.

Morton received a bonus after his service as acting Project Manager

Storey: Yes, that's very nice. Did they open up for advertisements, or how did that work?

Morton: For the vacancy itself?

Storey: Yeah.

Morton: Yes, it was advertised. It was a competitive promotion as it turned out for me.

Storey: I meant for the Project Manager.

Morton: Oh, the Project Manager. No, the Project Manager position, I think, was a directed reassignment. Bob was already a Deputy to [Darrell] Webber in Denver at the time.

Bob Towles becomes Project Manager through a directed reassignment

Storey: To the Assistant Commissioner for Engineering and Research.

Morton: Research, right, in the Denver office. Of course, Bob had served as Regional Director, Assistant

Regional Director, in Amarillo before they closed that regional office. I think they offered him the job in Phoenix and he just took it on a reassignment. I don't recall that there had been any vacancy notice, any competitive vacancy notice on the street for that job.

Storey: How long did it take him to come after you knew he was going to be the person?

Morton: It was relatively quick. It was probably a month and he was down here.

Storey: What was he like?

Morton: Well, Bob was an old Bureau hand in the context that he'd started young and he'd worked for a long time and he'd seen a lot. I think he used to tell me he started in the Shasta camp in the thirties, his dad worked there, and he'd worked at night, on a part-time basis, fueling and servicing the trucks and automobiles that they had during construction of the dam there at Shasta. He's a pretty mellow individual. He'd come through the construction side of Reclamation organization. He'd been the Project Construction Engineer in Palmetto Bend in Texas and San Luis Dam in California, and he'd worked as Assistant Regional Director, Regional Director, and Deputy Assistant Commissioner, so he had quite a background in the administrative areas.

When he got here, I think he really hit the ground running. He knew what was going on as far as CAP. He knew the whole story about construction. I mean, he was very much familiar with that from his years at the E&R Center. I think he'd been pretty well briefed by the staff up there on the status of construction. Generally, I guess, my role as it has been since then, has been

Bob Towles

Towles worked at Shasta Dam during its construction

Towles was Construction Engineer at Palmetto Bend and San Luis

Morton's role in dealing with Towles and subsequent project managers

to be the gatekeeper, the Chief of Staff for the Project Manager or the Area Manager, as the case is today.

Once we developed a relationship, I think my first assignments were to make sure everybody knew who he was, introduce him to all the key players in Arizona, and decide how we were going to split up the duties. And generally, because of his background, he gravitated towards the construction side of the organization and he suggested that the O&M and planning side of the organization become my bailiwick. And so the realty organization, the environmental organization, the water and contracts, the Planning Division, they all ended up reporting to me, and Bob generally oversighted the activities that were associated with the Construction Engineer and his immediate staff.

Storey: And the Maricopa Water?

Morton: Well, that was a construction issue. Hallenbeck, of course, shortly after our fiasco, he'd come down and committed to working with the District and arranging for proper compensation. The water district asked that somebody from the regional staff, since they seemed to be more sympathetic to the water district's needs, asked that someone from the regional staff be the focal point for the negotiations.

So at that time, [V.] LeGrand Neilson was the Chief of our Contracts and Repayment Branch in Boulder City, and he became the direct immediate point of contact with Maricopa Water District for negotiating an agreement that would allow our construction activities to proceed unimpeded and would provide the water district

Maricopa Water District requested a regional representative for negotiation of issues at New Waddell

with just compensation for the facilities that they had up there.

Joe Falbo [phonetic], the General Manager from the Water District, had also sat in on the discussions regarding the Plan 6 up-front funding agreement, and he was very much impressed by Ken Maxey [phonetic] and Tom Phillips from the Washington staff. So he requested that the Washington staff also be involved, and the Commissioner designated Terry Cooper and Tom Phillips from his staff to participate in the negotiations with the Water District. Hallenbeck arranged for LeGrand to chair the group, and Bob Wilburn, the Chief of the Realty Branch in Boulder City also participated and they also included me in that negotiating team.

Maricopa Water District also requested involvement of Washington, D.C., Reclamation staff in negotiations

Storey: This would have been Commissioner [Dale] Duvall?

Morton: Yes. So during that 1986 time period, late '85 and on into '86, we negotiated terms and conditions for interim use of the facilities and then the permanent use of the facilities. And then when Bob came on board, he joined the group, so there were six of us plus every second or third negotiating session a representative from the Field Solicitor's Office would participate. So we had pretty broad support throughout Reclamation to ensure that the Maricopa Water District was fully and equitably compensated for the interests that we were taking from them.

Negotiations with Maricopa Water District regarding New Waddell

Storey: How would you characterize those negotiations? I know yesterday you told me the results of them, but you didn't talk about the negotiations themselves.

Morton: That was kind of an interesting situation. The Water District went out and hired a well-known Washington attorney, Washington, D.C. attorney, Jerry Mize. Jerry came in and kind of told us what it was that we were supposed to provide to the water district. They also brought in a local attorney who was somewhat knowledgeable in water rights law and condemnation law. So generally, when we sat at the table there would be the General Manager for the district, the engineer for the district and two attorneys, plus the person that's involved in their realty activities, real property activities for the District.

We didn't get to the point of having a court reporter there to transcribe all of the discussions, but, in fact, the realty person for Maricopa Water District would take substantial notes on what was actually discussed, and she could read all of those notes back to us at the next meeting if we asked about it. So Coco did a good job of keeping track of what was said.

So it was not a friendly negotiation initially. There was, I won't call them threats, but there was certainly a demeanor there that indicated to the Federal representatives that Maricopa Water District was going to ensure that they got their just due, and if there was any deviation from reasonableness on our part, there was always the threat of litigation staring us in the face.

So I think that's where we kind of got into a situation three-quarters of the way through the negotiations where we were pretty close to an impasse, and it was about that time that Bob inserted himself into the process and made things happen. I mean, he offered a fresh perspective on what we had negotiated to date and brought some new ideas to the table. Of course, we'd kind of

Bob Towles's entry into negotiations with the Maricopa Water District brings a fresh perspective to the table

run out of ideas by that time and we were pretty much at a stalemate on final closure of the agreement. Just the new perspective, the fresh viewpoint that Bob brought to the table really helped in achieving closure on the agreement.

Storey: Would you characterize that new perspective as concessions, or what? And what were the issues?

Morton: Well, the issues revolved around valuation of the property right that they had up there at Waddell, at the existing Waddell Dam. We had a major difference of opinion. Both Terry Cooper and Bob Wilburn were realty people within Reclamation with a long-standing history of working on a number of land acquisition programs. They had researched the title to the reservoir, the existing reservoir, and found that Maricopa Water District did not have much in the way of fee simple title. They had an 1890 easement over some former BLM [Bureau of Land Management] land. BLM had divested themselves of the land in the forties to the Maricopa County. Maricopa County had acquired it under a Recreation Act for a dollar an acre-foot.

So the underlying fee title was probably in Maricopa County, and there was a lot of confusion about what form of title or right that Maricopa County actually held or how much Maricopa Water District held. It was kind of like, who's got the most value here. We knew that there was about 100 acres right in the bottom of the reservoir that the Maricopa Water District held in fee title, but the rest of the lake, some 3,000 acres of the existing lake, I mean of the original lake, the title was very much clouded as to whether the state land department held it, whether Maricopa County held it, or whether Maricopa Water District held it. Of course, Maricopa Water

Valuation of Maricopa Water District's property at New Waddell was an issue

District was alleging that anybody else's title was secondary to their right-of-way, and the value of the right-of-way was for storing water, so that they should be compensated for the full value or substantially the full value, 95 percent or so of the full value, and we were getting the same kind of story from the other two competitors for that property right.

Maricopa County was saying, "Well, you should pay us the lion's share of the compensation," and the state land department was saying the same thing. It was kind of like, well, should we be paying 250 to 300 percent of the value by paying each one of them the full value? Well, you know, that was contrary to our thinking, certainly. That was one of the concerns.

Some of the other concerns were in relationship to the actual facilities that were built out there. I mentioned yesterday that the district was insistent on having the right to release their water from the reservoir and put it in the lower lake, so that the water could be diverted into their canals. A much simpler and more efficient system would have been to run a pipe from the new reservoir right to their canal and discharge directly into the existing canal. That would have negated the reconstruction of the diversion dam, the continual operation and maintenance of that diversion dam. It would have provided a direct pressurized system to deliver water to the District, and the District didn't want any of that. I mean, it would have been about a third, if I remember right, about a third of what the costs were to rehabilitate the diversion dam, without even considering the additional cost of O&M. Of course, that's Maricopa Water District cost, but nonetheless, we were trying to demonstrate to them that if you went this route, you were going to

be much better off in terms of your future O&M costs.

I guess if you've done something one way for fifty years or seventy years, it's kind of hard to break that tradition. And of course, their landowners and their Board of Directors would have nothing to do with our suggestions for modernization and upgrading of their facilities. They'd operated that diversion dam and diversion reservoir for seventy some-odd years and they were going to continue to operate it in that context. They didn't want to make any changes.

We were in a situation where the construction program was starting to dictate access to the site. We actually ended up with three distinct agreements with the Maricopa Water District. The first agreement was an early agreement, probably in '84. I think it was in November or December of '84, before I became Assistant Project Manager. And that agreement basically allowed our exploration staff access to the site, to the access, so that they could drill and sample the construction site itself. We had to map it, we had to geologic map it, we had to drill a number of holes, and take a number of cores, and sample the cores, and excavate test pits. So we needed access to their property to verify the nature of the surface and subsurface there at the dam site.

So that first agreement just let us in there, and then as we developed, as a result of the data that was collected, we concluded we needed to really put in a cutoff wall and do some more extensive geologic exploration because we were identifying a number of buried alluvial channels at the axis of the new dam site. So we issued a contract to go in there and excavate that and put in a concrete cutoff wall. Of course, we designed it so that we could place it as a slurry so we didn't

Maricopa Water District did not like Reclamation's suggestions for modernizing and updating their operations

Reclamation ultimately had three agreements with the Maricopa Water District

First agreement with Maricopa Water District permits access to the future site of New Waddell

Second agreement with Maricopa Water District permitted Reclamation to put in a cutoff wall for New Waddell

have to make any major dewatering efforts, but we still needed access for the contractor.

That was the second agreement, but the first agreement I was involved in negotiating, and I think we reached closure on that. That was probably just before Bob came on board in '96 ['86]. Then it was a little bit later that we had the third, actually got closure on the third agreement, which was for total compensation for the replacement water supply system, both in terms of compensation or consideration to the District, as well as all the commitments related to O&M, how they would O&M the works that were specific to Maricopa Water District.

Third agreement with the Maricopa Water District is for total compensation for the project

Storey: I can see where some hardnosed Reclamation employee could have said, "No, we're going to do it the way we've always done it."

Morton: That's what I said. (laughter)

Storey: Why didn't we do it that way? What, in effect, changed your mind? You know, you said you came back and you called Mr. Hallenbeck, but what happened in there?

Morton: Well, I guess from my perspective, I'd been given this guidance and I wasn't real comfortable with that. You know, it's kind of like it's the hard-handed big government approach and, "We'll sort it out later, but we're going to come in and take over." I've never been a practitioner of that philosophy, first off. And secondly, I think it was the fact that the Board demonstrated that they were going to fight this one way or the other.

We had an agreement, or we were about to execute an agreement, for Plan 6 funding that basically said that, "We're going to accelerate. If

How negotiations regarding Plan 6 played into what was going on with the Maricopa Water District

you, the beneficiaries in Arizona, put up 300-plus millions of dollars, we'll do our best to accelerate the construction of Waddell and Roosevelt and Cliff so that Central Arizona will get the benefits of those facilities as early as it is possible." Here was a major impediment potentially sitting there, you know.

Reclamation staff was saying, "Well, you know, we've never done this. The Federal Government's never done this." We consulted with the Justice Department and the Justice Department says, "We don't know of anybody in the Federal Government that's ever condemned somebody else's dam and water supply system." We looked at the New Melones and Melones Dam in California. We thought maybe the Corps had some experience over there, since they'd built the New Melones Dam, I guess probably in the late fifties. But they couldn't give us any help. We cast about with the Tennessee Valley Authority and some other agencies within the Government, but, generally speaking, we had no experience.

Justice was of the opinion that we could very readily end up having to buy the whole District if we acquired and extinguished their water right, the District was under no obligation to accept our Colorado River water as a replacement supply, and the value of what was being taken could have very easily been equated to the value of all of the member lands that were served water from the District. I mean, it was clear that we had no precedents to guide us in this situation. Even our own Federal attorneys were telling us that, you know, the bottom line could be a very expensive proposition.

The District is, oh, I think it's about 25,000 or 28,000 acres. It's in a rapidly urbanizing area. As I said earlier, Del Webb owns a lot of land. J.G. Boswell owns a lot of land. Goodyear Farms

The was uncertainty about Reclamation's legal grounds for condemning a dam and water right

owns a lot of land. These are all big corporate giants and they've got resources to throw into the battle. So it became obvious that if we didn't negotiate, we could be stalled for a very long time in gaining access to the site and actually constructing New Waddell Dam, which could have resulted in the downfall and demise of our agreement we were about to strike on up-front funding for Plan 6. So it behooved us to negotiate.

And you know, after considering our options, negotiation was the only way to go, and then it was a case of we're here to protect the interest of the United States, we can't sell the farm. We've got to be reasonable, but where do we draw the line? How much compensation is adequate, how much is overly generous, how much is a windfall? That was what we were having to deal with, and it wasn't just a singular issue. If it had all been just a single money issue, it might have been a little easier. But it was future operational rights, it was what constitutes the replacement water supply system, it was what access are we going to provide, what kind of replacement facilities are we going to provide, and how much money are we going to pay.

Actually, the money was not that large in the big sense of the thing. It was the fact that in order to provide all the other aspects of the replacement water supply system, it added incrementally to our overall cost.

Storey: Boswell, I think, is a name that comes up in the Central Valley; is that right?

Morton: Boswell's a major agribusiness organization. I don't know how many acres they have, but they have lands in the Central Valley, Westlands

"negotiation was the only way to go, and then it was a case of we're here to protect the interest of the United States . . . We've got to be reasonable, but where do we draw the line?"

Irrigation District, along the Colorado River at Yuma, and they lease land from the Colorado River Indian tribes.

Storey: This sort of leads me to another question that I wanted to ask anyway, and that's acreage limitation. Did this somehow cause the Maricopa Water District to become subject to Reclamation law, or am I hearing that everything was kept very separate as a legal process so that Reclamation law wasn't applicable?

Morton: As it turned out, the Maricopa Water District was concerned that if they were forced to take CAP water as a replacement for their water that was conserved by the original Waddell Dam, that would require them to comply with RRA [Reclamation Reform Act]. That in fact, even though it was a replacement water supply, it was now project water and it would effectuate RRA. Initially they applied for an allocation of CAP water, but when the initial offers to contract were made, the Maricopa Water District made a conscious decision not to contract for CAP water.

Then when we came in there in the early 1985 time period and said, "Well, we'll just condemn you and secure all of your property rights, and to ensure the integrity of your member lands, we'll just provide you a CAP replacement supply, at no cost, or at whatever cost you had levied previously for the Agua Fria water," that caused additional concern that while they had consciously not chosen to take CAP water because of RRA and now you were going to impose CAP water on them anyhow and now they were going to be subject to RRA. So they wanted to make it crystal clear that they didn't in any way, shape, or form, there was no way that they were going to subject themselves to RRA.

Maricopa Water District chose not to take CAP water because it did not want to be subject to the requirements of RRA

So initially that was an issue. I think that we got a quick reading out of the Solicitor that the replacement water supply, if, in fact, we went that route, would not burden the District with RRA requirements just because it came out of the CAP system --

END OF SIDE 1, TAPE 1. JULY 17, 1996.

BEGINNING OF SIDE 2 TAPE 1. JULY 17, 1996.

Morton: Even though the delivery was made from the CAP system, it was not a project water, per se. It was a replacement water, and we got an early initial Solicitor's opinion to that regard. But you're right, it was a consideration on their part, or a fear on their part, that the process I'd laid out initially was unacceptable for that reason, as well. There was a number of reasons why they wanted to go through the negotiation process rather than leaving it up to the courts, and certainly the imposition of RRA was one of their fears.

Storey: What about RRA, however? I think we've discussed this at least once before, maybe. But you know, in perambulating around to stay awake in the late afternoons over there [in the other office building], I noticed there's a big office that says RRA Compliance and there are probably seven or eight desks in there or something. What's going on there?

Morton: Well, I'm surprised that there's that many desks. (laughter)

Storey: Well, I haven't really stuck my head in, but there're some desks in there.

Morton: Yes. Yeah, we have a staff of four associated with Reclamation law administration and compliance, and they do audits on all of the subcontractors for CAP agricultural water. They ensure that all the forms are properly arranged, that the waters delivered are delivered to the proper acreages, that all acreages, the delivery lands are eligible, that appraisals are conducted whenever they sell the land to ensure that the price doesn't reflect any project benefits, etc.. So it's a rather extensive process that we go through to insure compliance with RRA. I think there's three people in the regional office and a couple of people at Yuma, and we have four here in Phoenix that deal with RRA enforcement measures.

Storey: However, I think you told me before that there wasn't a serious problem with RRA on CAP, so what I'm hearing you say is that basically they're just making sure there isn't a major problem?

Morton: Right. They're just making sure that there is compliance.

Storey: I see. So it takes seven or eight people in the Lower Colorado Region to do that?

Morton: That's correct. There's an appropriation of roughly, I'm going to say, roughly a million dollars a year in our O&M budget for RRA compliance in this region. I would assume that other regions probably, at least in the Mid-Pacific's instance, probably a larger program than that since they have a number of additional lands. In the Pacific Northwest Region, I know that they have problems with waterspreading, so I would imagine their staff may be larger up there. But I would think that most regions have a very equivalent program. I haven't looked at a

Bureauwide O&M budget recently, but I would guess that RRA compliance Bureauwide is probably a 5 to \$6-million-a-year appropriation.

Storey: How many acres, approximately, are these folks overseeing on CAP?

Morton: I think we're right about 360- 380,000 acres, something on that order.

Storey: Receiving water?

Morton: Yes.

Storey: Okay. Interesting.

Morton: When we initially did our land certification to Congress back in '72, we were looking at something on the order of a million acres. And when we got right down to contracting, a lot of entities backed out because of the potential threat or burden of RRA. I mean, that was the story they told. Some of them may have been just smart enough to realize that the farming economy couldn't support the cost of CAP water, I don't know.

Storey: What kind of crops can support the cost of CAP water? Do you have any feel for that?

Morton: It takes a diversified farm economy. Well, right now, at least, the price of cotton is pretty good. You generally would need a cotton base. In the last five years, there's been a lot of interest in wheat crops, and this year we've had kernel bunt infestation that has really destroyed the wheat crop in Arizona. A number of growers had gone to durum and semolina wheat and high-value pasta

*The farm economy
required to support CAP
water*

wheats. I think we had almost a 180,000 acres of wheat planted this year and anywhere from 5 to 30 percent of those lands, depending on the location, have been infested with kernel bunt, which basically destroys the wheat crop and results in the crop being unavailable for sale to human consumption. I mean, it just taints the flavor of the wheat and the product that comes out of that wheat, so they can't use it. A number of foreign countries were taking shipments of wheat from Arizona, and many of them have placed restrictions on wheat that's been contaminated with kernel bunt, and so our overseas shipments have fallen off quite dramatically.

Storey: Is wheat a new crop? Relatively new?

Morton: Well, it's been here, but it hasn't been a big seller until the last couple of years, and it has replaced, or maybe not replaced, but has supplemented cotton. I know when I was a teenager, we had wheat and sorghum and milo and barley as kind of a winter crop, as a fill-in rotation with cotton. But some areas of Arizona now have gone to a single cropping rather than double cropping, and the newer wheats take a little longer to mature, as I understand it. But the receipts are much higher, the net income is much higher than what it used to be.

Storey: Sort of specialty wheat.

Morton: A specialty wheat and maybe a little more heartier. It doesn't take as much soil amendments or as much fertilizer or what have you. The inputs to growing the crop nowadays, the wheat varieties we have today don't take quite the inputs that they used to take to generate a high yield. So you don't need as much water, you don't need as much

fertilizer. You possibly don't need as much custom tillage. So the bottom line is, from a cash-return perspective, it's a better crop than what it used to be, it seems like.

But, most farm budgets for the districts we deal with include winter vegetables now, include some grapes. Many of the districts, Maricopa-Stanfield, for example, I think is running almost 8 percent grapes. Both Maricopa-Stanfield, and Central Arizona Irrigation Districts have nut crops, pistachios, pecans. The New Magma District seems to be a fairly early peach producer and they hit the markets in, like, March back East. So they'll ship carloads of peaches to a spot market, say Washington, D.C., or New York City and the peaches sell for lots of money. I mean, they're dealing with individual peaches almost rather than carload lots. So like I said, it's really diversified.

It used to be that the cash crop was cotton and then you filled in with alfalfa or some other hay crop, and you fed that to either cattle or dairy cows. There's still some dairies, not as many as there used to be. There's still a lot of cattle feeding going on in Arizona, but I think it's declined since I was younger.

Storey: What about citrus?

Morton: Citrus is kind of on a demise in Central Arizona. I think citrus was very popular in the 1930s and forties, even in the fifties, but the locations -- the air drainage in the winter, you need good air drainage to keep it from freezing in the winter. It does get cold in Arizona in the winter at night. Those locations are good homesites today. Most of the citrus, I think, in Central Arizona has been urbanized. There had been several citrus groves

that have been recently planted on the Gila River Indian Reservation. I think that they're still fairly young, four, five, maybe six years. They probably are just getting into commercial production with their first fields this year or next year. I don't know if that's going to be of benefit or not, but the old groves have found their way either into homes or recreation sites, parks, what have you. Most of them are no longer in commercial production here in Arizona, Central Arizona.

A lot of citrus in the Yuma area still, but here in the Phoenix metropolitan area and south into Pima and Pinal County, there was little, if any, citrus at those locations. I mean, those areas generally, with the exception of the San Carlos Project, they blossomed and grew in the war years and immediately after the war, so they weren't tied to a citrus-type economy. I think that the big thrust for citrus here in Central Arizona was in, like I say, the thirties and forties. They had mature orchards when I came to the Phoenix Metropolitan Area in '52.

Storey: I think you mentioned avocados in the last few interviews.

Morton: Yeah, they've tried avocados here. They're a great cash crop, but they generally are prevalent on the hillsides in the San Diego and North San Diego Valley area, Escondido and that area. We don't have the Mediterranean climate here, it's too hot in the summer for avocado trees. But it is a great cash crop. I mean, there's probably in excess of a \$5,000 acre return on avocados -- if you can keep the people from walking into the groves and stealing them. (laughter)

Storey: What kind of returns do people get on some of these other crops you've been talking about? Do you have any idea?

Morton: Well, certainly diversified vegetable crops, onions, carrots, lettuce, broccoli, melons, \$1,500 an acre, something on that order. Cotton, return on cotton is maybe \$1,000 an acre. Return on hay, not nearly that extensive, but if you are a diversified farmer and you have a dairy farm that's affiliated with your property or you have a cattle-feeding operation, it depends on how you do your tax accounting and so on, whether you lose money on the alfalfa and you make money on the cows or vice versa, I guess. But the bottom line is, you have to feed them something and so you need to come up with some basic hay crop to feed them.

Storey: You mentioned that you sort of took care of all the administrative things, the O&M things, when Bob Towles came in. It must have been quite a change from being the Acting Project Manager to sort of moving into those specializations.

Morton: Well, it was something that I had worked in on and off. I'd been involved in the O&M part of the organization early in my career, the planning part of the organization, the environmental part of the organization. About the only thing that really was new to me was land management and land acquisition and the issue of the administration, the administrative support services, personnel and so on, that was all relatively new.

We operated in that mode for probably not more than a year, year and a half, because we were a very large office at that point in time. We were 600 people at least, I guess. And there was always something going on. And Bob basically said in

Transitioning into the position of Assistant Project Manager

'87, yeah, probably in '87, he says, you know, "We're spread too thin. We've got to get some additional help," and so we established two new positions. We established an Administrative Manager position and an Operations Manager position.

So a lot of the stuff that I did in the early year, year and a half, that Bob and I worked together as a team was parceled off. We brought in Pat Jensen, promoted her from the administrative position she held in Fresno and brought her in to head up our Administrative Manager's slot. She became our Chief Administrative Officer in Support Services, IRM, personnel, acquisitions -- all reported to Pat. Then we hired John Newman from the Durango office, he came down and became the Operations Manager, and so environment, water and lands, realty, all reported to him. So that reduced the burden and allowed us to deal with specific issues, Bob and I.

Two new management positions established

Storey: Things like?

Morton: Whatever came up, it seemed like. Here in Phoenix we generally tried to deal with a long-term strategic plan, but if you look at what we do on a day-to-day basis, I think it's 90 percent short-term tactical activity, fighting fires when they come up, and it seems like every time you turn around you've got another fire to fight. We sit here and we do multi-year budgets and we lay out multi-year programs, and we never have the opportunity to fully implement those programs because we're spread so thin on fighting fires, it seems like. It's been that way ever since I can remember. I never seem to have the opportunity to take a breath of air and start anew. It's just like, I've got to do this today, I've got to do that tomorrow.

"Here in Phoenix we generally tried to deal with a long-term strategic plan, but if you look at what we do on a day-to-day basis, I think it's 90 percent short-term tactical activity, fighting fires when they come up, and it seems like every time you turn around you've got another fire to fight."

Storey: Is that what you were doing during that first year and a half after Bob Towles came in?

Morton: I think we were in the process of implementing the Plan 6 arrangement, amending the Plan 6 arrangement, finalizing and developing the exhibits with Maricopa Water District for the agreements we'd struck with them. I think it was in the fall of '87 that I think we had a few moments to catch our breaths and Bob sent me to Boulder City. I worked for about three months there, I guess from about Labor Day through Thanksgiving, I spent as the Supervisor of Water and Land Operations in the regional office in Boulder City. I think that was the first time I'd kind of taken stock of what was going on around me and said, hey, here's a change.

But there was some restructuring going on in the regional office at that time. Dave Gudgel, who had formerly been the supervisor, had gone to Yuma to become the Project Manager at Yuma, and they had a vacancy up there. I had already told Ed [Hallenbeck] I wasn't coming up there permanently, and he suggested, "Well, why don't you come up and fill in for a couple of months while we select somebody to take over the job." So that was the first time I'd been away from the project with the exception of the time I spent in Washington during the [Jimmy] Carter Hit List and the time I was on military furlough when I was in the National Guard. I mean, that was probably the longest singular period of time that I'd been away from the project or away from the Phoenix Office, which was kind of a different situation in that you got a whole new perspective on what was going within Reclamation and within the region. There was something other than CAP in Phoenix.

Morton serves as supervisor of land and water operations in the region in Boulder City

Storey: What was most striking about that for you?

Morton: How quiet it was. (laughter) The phone wasn't ringing off the hook. The regional office is primarily a policy oversight [office], and not a lot of technical activity goes on in the regional office. They deal with a lot of political issues, a lot of policy issues, and that was a big change for me. I'd been dealing with on-the-ground technical issues, how do we acquire this piece of land, how do we get some money to do this, how do we build something, what kind of data do we have to collect to build it, what's the impact of building it. And here now we're talking about cost-recovery issues and issues of Hoover Visitor Center or relationships with Mexico, delivery of water to Mexico, and dealing with Metropolitan Water District of Southern California. So it was quite a different situation in Boulder City.

"The regional office is primarily a policy oversight [office], and not a lot of technical activity goes on in the regional office. They deal with a lot of political issues, a lot of policy issues, and that was a big change for me. I'd been dealing with on-the-ground technical issues . . ."

Storey: What did you learn about CAP while you were there? It's a different way of looking at the project, I would think.

Morton: Yeah. I think in talking to the people there in Boulder City, getting to know them, they viewed CAP as a prima donna, the exception to the rule. All the other offices in the region or all the other offices in the Bureau did business this way, and those people in Phoenix are exceptions to the rule. They are always bending the rules or not following the rules. (laughter) It's kind of like Phoenix makes up the rules as they go along. They get the lion's share of the budget -- which was true. I mean, the only reason that the Lower Colorado Region had a budget was because CAP paid for it.

"I think in talking to the people there in Boulder City, getting to know them, they viewed CAP as a prima donna, the exception to the rule."

But, you know, everybody thought that we were over-graded and over-staffed, and my

argument was, "Well, I think we're under-recognized, and don't have anywhere near enough people to do the job right." (laughter) It's still an attitude that pervades the organization. We think the region, generally, is a taskmaster, an impediment to getting the job done, a strain on our economy, a drain on our overhead costs that drives up our overhead costs and yet doesn't produce any material benefit to the end result. The regional staff think we're a bunch of prima donnas.

Storey: One of the things I wanted to talk about was Colorado River water quality and how CAP affects that or potentially affects that. Is that an issue? Maybe it isn't an issue, I don't know.

Morton: Well, it has been an issue. I don't know whether or not it will continue to be an issue. In other words, we had no return flows. Generally, there's two aspects of water quality. One is the saline concentration that results from the removal of water from the system. In other words, evaporation, evapotranspiration takes water out of the system and leaves the salt there. The other, of course, is as you irrigate, return flows get back to the river and the return flows concentrate, pick up salinity in the soil mass, and returns that to the receiving body. So you concentrate [salts] and then you bring additional salts back to the receiving body through irrigation. Well, we take the water away from the river and when we take it away from the river we take the salts with us. So if the salinity of the river is 700 milligrams per liter at the diversion point, we take that volume of salt with us and bring it to Central Arizona. It never gets back to the river.

*CAP and Colorado River
water quality*

There are those that would say we also concentrate the salts because we're taking a million and a half acre-feet away from the river, so there's that much less water available to dilute. The only problem is that if we didn't take it away from the river, somebody else probably would.

Storey: Like California. (laughter)

Morton: California or Nevada. And at least in the case of Nevada, some of the return flows do get back to the river and concentrate as the result of bringing salts out of the soil, leaching salts out of the soil. So I think you can argue both sides, and various people have argued both sides. I think what we're faced with is an understanding of all the processes that contribute to salinity and water quality along the Lower Colorado River and what we can do about controlling it and what we're mandated to control. And the bottom line is that the original projections that resulted in Title I of the Colorado River Salinity Control Project, i.e., the Yuma desalting plant, have yet to achieve the level that was envisioned for the mid-1980s.

In other words, in the early seventies when the Salinity Control Act [fn here -- The Colorado River Basin Salinity Control Act of 1974 (Public Law 93-320; 88 Stat. 266)] was passed, the bottom line was that we had a commitment to Mexico to deliver a certain quality of water and in order to do that by the mid-1980s, we were going to have to desalt a portion of the river. And at this time, in 1996, the desalting plant is still sitting there on standby status, it still has not gone into commercial operation, and current projections are that it may be another year or two before the treaty with Mexico necessitates operating the plant.

Obviously, there's been some improved water qualities out of Title II of the Salinity

*The Colorado River Basin
Salinity Control Act and
our commitment to deliver
water of a certain quality to
Mexico*

Control Act which deals with irrigation return flows and point source discharges in the Upper basin. So some of those efforts have been undertaken, either by the irrigation districts or the Soil Conservation Service, have assisted in reducing the amount of salt that comes into the system. We also had a number of years in the early eighties where we had relatively higher runoff on the Colorado River and that tended to freshen the system as well. So those combination of factors have not --

END OF SIDE 2, TAPE 1. JULY 17, 1996.

BEGINNING OF SIDE 1, TAPE 2. JULY 17, 1996.

Storey: [This is] Brit Storey with Larry Morton on July the 17th, 1996.

Morton: So for normal operating purposes, CAP produces a drawdown in the reservoir systems over what would occur probably without CAP under a normal regime, roughly a million and a half-acre-foot would be diverted to CAP during the course of a year. Of that million acre-feet, approximately 8- or 900,000 acre-feet would probably have gone to Southern California and 600,000, maybe 700,000 at the high end would be a depletion on storage. So if you look at it in real simplistic terms, we're over the long run going to draw the reservoir down and the amount of spills from the reservoir system in the future when we get some high runoff years back-to-back, the amount of spills would be less than what would occur without CAP.

So I guess the bottom line is, CAP probably does affect the water quality because the net effect will be a lower water reservoir capacity of reservoir storage in any given year and a

concentration of the salt in that volume of water. Then when the freshening flows come in, the surplus flows come in to freshen the reservoir, it will be more saline and, in turn, the dilution effect will be reduced. So I guess if you analyzed it with and without CAP, there is some measure of adverse impact on salinity.

Of course, the other side of the coin is if the reservoir levels, on average, are lower then the evaporation is lower so the concentrating effects of the evaporation are going to be smaller. You don't lose as much water from evaporation because the reservoirs are lower. But I think judgmentally, I think, and I've not looked at the long-term technical studies that have been done, I know that they've been done, but I really haven't looked at them to say CAP is a major contributor or minor contributor to the worsening salinity conditions in the Basin. My guess is that it's probably a contributor, but on the minor side rather than of major significance.

"I guess if you analyzed it with and without CAP, there is some measure of adverse impact on salinity."

Storey:

By the time you went down there and acted as the supervisor for land and water operations, we were pumping water into the system. That relates to another question I wanted to ask you and this looks like as good a point as any. And that is, who controls when CAP can draw water out of the Colorado? How does that work?

Now, you've talked about this indirectly, I think, from your experience when you were in Boulder City and your rotation program, maybe, but, you know, a million and a half-acre feet a year or whatever up to what, 2.2, was it, in surplus years? That's a lot of water. And it must be fairly complicated juggling to control the Lower Colorado. So my impression is, CAWCD can't just turn on the pumps any time they want to. How does this work?

Who controls how and when CAP can draw water out of the Colorado?

Morton: Well, it's very similar to what it was back in the early sixties or mid-sixties when I was first in Boulder City on my rotation program. There's an annual coordination meeting where two things happen. First, all the Basin states advise Reclamation of what their current year and the two subsequent years of their operation, or their anticipated operation, looks like. The principal players, of course, are the Department of Water Resources in Arizona, ~~the Colorado River Board of Nevada,~~ or the Colorado River Board of California, and the Colorado River Commission of Nevada. So the three entities represent the states, but, of course, they compile what the various parts of the state probably intend to use. CAP, Yuma, the Colorado River tribes, the Imperial Irrigation District, Coachella, Metropolitan Water District of Southern California, the lands of Blythe, Clark County below Mead, the Southern Nevada Water Authority, they compile all of that information and they project that and advise Reclamation what their anticipated operations will be for the forthcoming water year and the subsequent two years.

Reclamation, on the other hand, has to assess the conditions in the watershed, the water in storage, both in the Upper and Lower Basin, and a number of other factors concerning what the projected water supply is. Reclamation advises the Department what criteria will be employed in the forthcoming year. In other words, is this a shortage year where deliveries have to be curtailed? Is it a normal year where there's available water supply to deliver 7.5 million acre-feet plus a million and a half to Mexico under the treaty? Or is it a surplus year in which deliveries in excess of 7.5 million acre-feet can be achieved without adversely affecting the operations of the

Reclamation operates the Colorado River long term

Water users advise Reclamation they way they'd like to use Colorado River water for the next three years

Reclamation, for its part, must determine conditions in the watershed and how it proposes to operate the river for one year and beyond

Colorado River? So that is a declaration that has to take place.

It's my understanding, and I haven't seen the press release, but it's my understanding that they just amended the criteria in the last month or so to indicate that the calendar year '96 will now be a surplus year, that there was a surplus declaration made. I haven't seen anything official. That was something Dennis [Schroeder] told me a couple weeks ago.

But the bottom line is that once that determination is made, then the Basin states and the member agencies take that as an opportunity to adjust their proposed method of operation. Generally, there's not much you can do in the case of domestic water uses. Metropolitan Water District, if they've got their aqueduct full, they can deliver 1.2 million acre-feet and that's about it. CAP, on the other hand, has the opportunity to go from a million and a half in a normal condition situation to 2.2 million in a surplus situation. So there is a lot of flexibility within CAP.

You can't just turn it on and off at the flip of a switch. If you've anticipated, in the case of CAP, a certain cropping pattern, a certain water delivery regime, a reservation of energy to pump that quantity of water, it's pretty hard to step back at this late a date, in the middle of the water year, and say, "Oh. Well, we'll start instead of pumping 2,500 or 2,200 cubic feet per second, we'll start pumping 3,000 cubic feet per second immediately," because you generally have no place to deliver it.

One of the things that's good about Central Arizona is that we're moving towards a water banking situation, a situation where we can actually recharge the groundwater. A number of entities in the groundwater replenishment district have been formed and a number of entities have

"it's my understanding that they just amended the criteria in the last month or so to indicate that the calendar year '96 will now be a surplus year, that there was a surplus declaration made."

The difficulties of changing water planning in the short term when a surplus is declared on the Colorado River

joined with the groundwater replenishment district. This will allow Arizona to take advantage of those years in which a surplus declaration is in effect. Right now Arizona has yet to get to the million and a half acre-feet of a normal year. But it appears that this year, 1996, we'll be delivering in Central Arizona about a million acre-feet, and when you add up all the apportionments, including a million acre-feet for CAP, you find that the Basin probably, in terms of capability, probably could use about 7.7 or 7.8 million acre-feet -- in excess of the 7.5.

That's why I think that the surplus declaration was timely. It allows the Metropolitan Water District to continue to operate at capacity rather than having to reduce their diversions, which would have happened. As the summer wore on, Metropolitan Water District of Southern California, as we came closer and closer to the 7.5, would have had to curtail their deliveries because their contract entitlement had been satisfied and they were operating on Arizona's share of the water. And to the extent that Arizona used it, Metropolitan would have to curtail their deliveries to ensure that the Basin met the 7.5 million acre-foot criteria.

Now, on a day-to-day situation, after everyone's aware of what the long-term perspective is, the three-year outlook, the more definitive one-year outlook, the Water and Power Division, they don't call it that anymore, they call it the Water Operations Group in the regional office, lays out a monthly strategy and then provides it to the Control Center, the Operations Control Center at Hoover Dam. The day-to-day operation and scheduling of power and water has now moved to what's called the Lower Colorado River Dams Facility Office, which is a long name

Why a 1996 declaration of surplus on the Colorado River is timely

Regional office that controls water operations lays out a monthly strategy based on the long-term projects made by Reclamation and water users

for Hoover Dam. The Project Manager there is responsible, he has a water and power scheduling organization. He is responsible for the day-to-day operation of the reservoir system, Hoover, Parker-Davis, Lake Mead, Lake Mohave, and Lake Havasu, as well as Headgate Diversion Dam [fn -- Known formally as Headgate Rock Dam] which is downstream of Parker Dam. Hoover Dam, the dam facility office, schedules power generation at Headgate, as well. So there's four powerplants that they have to deal with, and then I don't know how many points of diversion, thirty or forty points of diversion up and down the river, I would guess. I don't know that for a fact, but a number of points in which water is removed from the river.

Storey: So what I think I'm hearing is that CAP pretty much knows a month in advance when it's going to be getting water and how much water it's going to be getting?

Morton: Well, it knows a year in advance that it's going to have available -- actually it's going to know -- first of all, it knows from their general overall water orders that they're going to want a million acre-feet, for example. This year, they knew a year ago, roughly, that they were going to be looking at a million acre-feet of diversion, and in these kind of blocks, you know, so many thousands of acre-feet in this month, so many thousands of acre-feet in that month, so many thousands of acre-feet in another month. They had pretty well scoped that out. Then there's the weekly and daily deviations from that. Generally, within the system, within the CAP system, the daily fluctuations are dealt with by the operators within the CAP system.

*How the yearly scheduling
of Colorado River
operations works*

The monthly deviations tend to be dealt with by the operators at Hoover. If they know that there's a restrictive flood control criteria for Lake Havasu at Parker Dam, they can only operate within about a ten-foot range of elevation at Parker, and you've got Metropolitan Water District on the California side [annually] taking about 1.1 or 1.2 million acre-feet out of the river, and you've got Central Arizona Project on the Arizona side taking another million acre-feet out of the river. They have to make sure that the large blocks of volume of water are there in the reservoir kind of match, but the daily deviations between night and daytime, or even over a week, could result in a fluctuation in the reservoir.

But the people at Hoover cannot just hold all the water in Lake Mead and allow Parker or Lake Havasu to draw down below 440-foot elevation, because there's flood control criteria that restricts that. So they have to deal with gross blocks of water, volumes of water at Hoover, and make sure that those blocks of water are in Lake Havasu for Metropolitan and CAP to pump in accordance with their general pumping criteria, general diversion criteria.

From a day-to-day perspective, if water orders are curtailed, CAP can put the water in Waddell, behind New Waddell Dam. Metropolitan has several reservoirs *en route*. They can take up those fluctuations on a day-to-day basis for short-term things like excessive rainfall or what have you, where they just curtail deliveries because it's raining. Or vice versa, if you run into an extraordinary hot spell and the demand for water goes up a little bit, both systems can adjust to take that into account.

Storey: Sounds to me like you don't want an impulsive person running your water operations.

"The monthly deviations tend to be dealt with by the operators [of the Colorado River] at Hoover [Dam]"

How day-to-day fluctuations in water deliveries are managed

"You need to have somebody who is going to

Morton: No, no. (laughter) You need to have somebody who is going to be there every day, that understands the power and water integration needs along the river. Of course, the commercial power business is a competitive business, too, and one aspect of Reclamation's business is the generation of power. That's why we've got four powerplants. So certainly, you want to maximize the utility of that power, and oftentimes you run into situations, as we did a couple of weeks ago, where a powerplant in Wyoming goes offline and sends the whole system into some turmoil, and by having hydroelectric power available and having turbines on line spinning reserve in your turbines, you can bring those generators up to speed real quickly and take care of the loss of a base load plant as happened in Wyoming a couple weeks ago. Not all that great, several hundred thousand people were without electric power in the Western Grid. But I think that by having reserve components in a number of Reclamation's hydroelectric plants, we were able to reduce what the actual impact could have been had there not been on ready reserve.

But the operators need to understand the benefit of daytime operation to produce power during peaks to fit into the power load curve at the highest value possible, but at the same time they have to ensure that the volumes of water that are necessary to satisfy the diversions are en route. And it works pretty well for things like the Southern Nevada Water Supply, and Metropolitan Water District, and CAP, because they pump from reservoirs with some residual reserve there that allows some flexibility in their operation.

Where a diversion point is a run-of-the-river situation, like at the Palo Verde Irrigation District at Blythe, if you dry up the river below Parker, the people at Palo Verde are going to be

be there every day, that understands the power and water integration needs along the river."

"I think that by having reserve components in a number of Reclamation's hydroelectric plants, we were able to reduce what the actual impact could have been had there not been on ready reserve."

Operators try to maximize power revenues and ensure that appropriate volumes of water are ready for delivery

without water because they don't have any storage to assist in that kind of flexibility.

Similarly, the river is used for innumerable other purposes, fish and wildlife purposes, recreation purposes, etc., and we've got a commitment to maintain certain flow regimes along the length of the river. So the reservoir operation is pretty simple, cut and dried, not a real problem from Lake Mead down through Parker Dam. I don't perceive that is any kind of serious problem. I think that the flows below, there's a reach of river below Hoover, before it gets into Lake Mohave, and there's a reach of flowing river from Davis Dam several miles before it reaches the backwater of Lake Havasu. Those will have to be maintained, and I think that they have a base flow of a half a unit operation at Davis, for example, that they never drop below a 50 percent setting on one unit at Davis because of the need to get the ferries back and forth across the river from Bullhead City to the gaming casinos in Laughlin.

Storey: What other kinds of issues came up? Why do you suppose they sent you there?

Morton: I think they sent me there just to -- well, I don't know. I was going to say just to clear the air. The region was kind of in a turmoil. Ed had been in place as a permanent RD for about a year, a little more than a year at the time they asked me to come up there, probably about fifteen months, I guess, and he'd made some major organizational changes and was moving people around. I think he wanted somebody who could be a caretaker for a period of time until they could appoint new staff up there. I think that was generally it. I don't think that it was an effort to educate me as much as it was to assist in this transition in the

reorganization of the regional office. I think that was probably the main thrust of what was done.

Storey: Were there any particular issues that came up while you were there, or was it just sort of running the office?

Morton: It was pretty much a caretaker operation, I think. That's how I would have to define it. I was kind of bored, to be honest with you.

Storey: Wasn't as interesting as CAP.

Morton: Nowhere near as interesting as CAP.

Storey: So you were glad to come back?

Morton: Yeah.

Storey: Was this about the time that the two additional office heads [at CAP] were brought in?

Morton: Yeah. That's my recollection, was that immediately after I got back, they showed up on the scene, it seems to me.

Storey: And to whom did they report?

Morton: We all reported to Bob. In other words, the immediate reports to Towles went from three to five as a result of that expansion of the management team. It was kind of a pyramidal organization. Initially there was Bob and then there was Don Anderson, the Construction Engineer, and there was me, the Assistant Project Manager. So the two of us reported to Bob. There were a couple of staff people, the Public Affairs Officer, for example, the EEO Officer, reported directly to Bob. But then the respective organizations reported to me and to Don. Don

*Upon returning to CAP
Morton became the deputy
to the Project Manager*

had about three times as many people as I did, but we had the general supervisory control over the rest of the organization between the two of us. And with the addition, I guess I'd have to say, well, I reported directly to Bob still, I kind of became more of a Deputy rather than an Assistant. In other words, in terms of the organization structure, I only had three people that directly reported to me rather than about seven. I think Don Anderson still had about seven divisions that directly reported to him.

But the divisions that formerly reported to me, three of them went and reported to John Newman. I think three of them went to report to Pat, and I ended up with, well, we reorganized a little bit, too, so I think I had two divisions and one staff person that ended up reporting to me. So it was quite a change from a supervisory perspective, but then I kind of got thrown into the fold of assisting Bob and oversighting everybody, directing everybody.

So my involvement, for example, in construction, I started sitting on management teams, PMTs [project management teams] associated with the construction of Waddell Dam and Roosevelt Dam, for example, and making commitments of resources, dollar resources and people resources, on behalf of the Project Manager and the non-construction side of the Phoenix office. So it was a little bit different situation.

I got to interface a lot then with the staff from the Denver office. I was interested in the status of construction specifications, which up until that time they were a little flag on a chart that just basically said this is when a spec is going to come out. You have to have NEPA compliance, the culture resource compliance, the land

"then I kind of got thrown into the fold of assisting Bob and oversighting everybody, directing everybody."

Morton began to sit on project management teams

acquisition, the operating strategy, etc., etc., completed by such and such a time. So I was focused primarily on the prerequisites or the post-requisites of the construction activity prior to that time.

By early 1988, now I was involved in the entire process-setting for construction. My counterparts were division chiefs in the E&R Center, John Smart and Bill Anderson [and Bill Frasier] (Chief of Construction Division). Those individuals were kind of colleagues then with me, we were kind of on an equal plane.

Morton began to focus on setting the process to complete a feature, the prerequisites and post-requisites and their scheduling

Storey: Tell me the difference between a Deputy and an Assistant.

Morton: Well, around here, if you look at an organizational structure, we've named a couple of assistants, and I think this is kind of prevalent in our Lower Colorado Region, too, who will have line authority, supervisory authority over line organizations. The Deputy really is part of the same box, if you will, if you look at our organizational structure, it's part of the same box as the supervisor. And how they work is a relationship that they establish amongst themselves.

The deputy shares responsibility and power with the Project Manager

In other words, in our case here today, we've gone to a flat organization, what they call a flat organization, rather than a hierarchial organization, and outside of the Construction Engineer, we now have -- no, this isn't true anymore. We've just changed again. But we have like ten divisions, all of whom report directly to the Project Manager. So the Deputy and the Project Manager are just a two-headed amorphous organization. And presumably if the Division Chief seeks counsel, he can talk to either one of them because they're of a like mind, supposedly.

And I think we've generally worked that way. I know that Bob and Dennis and I -- I've worked with both Bob and Dennis in that context for the last ten years, so I feel real fortunate that we've been pretty well attuned in philosophy on most all issues. Very seldom that we find ourselves in conflict over an issue.

But that would be the difference as opposed to an organizational structure where you have --

END OF SIDE 1, TAPE 2. JULY 17, 1996.

BEGINNING OF SIDE 2, TAPE 2. JULY 17, 1996.

Storey: So that would be the way it was set up. And you've done that pretty much for nine years, ten years?

Morton: Yeah. When Towles went to Boulder City to become the Regional Director, Dennis Schroeder showed up real quick thereafter, so there wasn't this hiatus, this year-, fifteen-month time period, without a Project Manager on board that we had with Hallenbeck. So it's been since May of '86 I've worked for two Project Managers, and at least since about two years after Towles came on board, sometime in '88, we effectuated an expanded management organization and it was at that time that I kind of became, at least in practice, a Deputy with full authority, co-equal power, if you will, with the Project Manager. I guess power is not a good term, but we've generally operated as a team rather than a unique organizational unit, and I think that was probably the difference.

Storey: You mentioned there were a couple of divisions and a person who reported to you initially.

Morton: Yeah. They decided that the unique nature of our commitments to the Indian communities required us to have a planning staff, and they decided that the planning staff would report directly to me. It was only about six or seven people, and so the Planning Officer reported to me, the EEO Officer reported to me, and the -- what the heck was the other one? I can't even remember. It was just those two. I guess maybe that was all, just Carol and just two, two people that reported to me.

Work with the Indian communities on CAP required a planning staff which reported to Morton

Storey: This was beginning in '88?

Morton: Yeah.

Storey: Did you like it better when you were running several divisions or did you like it better when you moved into the Deputy position? And what were the changes in the way you worked?

Morton: I think by that time I was more pleased with the Deputy position because, as I said, we were moving forward on both Roosevelt and Waddell Dams almost concurrently with very extensive construction activity. I don't remember, \$200 million a year is in the back of my mind. I liked that aspect of the program. Up until that time I'd always been an outsider with the construction part of Reclamation. I'd worked in the area of budgets, and I worked in the area of defining operational criteria and ensuring that the prerequisites had all been satisfied so that construction could proceed in a reasonable and timely fashion. But here was an opportunity to sit down and really understand what went in and see what went into actual construction efforts. So by being Bob's Deputy and taking over some of his duties as directly related to supervision and involvement in the construction, I found that to be most satisfying. It

Morton found the position of deputy Project Manager very satisfying and revealing

was a good experience, I thought, and I enjoyed that.

Storey: Good. [Tape recorder turned off]
We're talking about the reorganization in '88. How did you find the nature of your work changed? I mean, in terms of examples.

Morton: Oh, boy.

Storey: You've already talked about the generalities of it.

Morton: Well, I'm trying to think of some specifics. One issue that had come up during that time period in the construction of Roosevelt Dam was how to deal with the need to install a new river outlet works. The existing dam, from a safety of dams' perspective, was defective in that under current-day criteria, design criteria, the reservoir could not be evacuated very rapidly if there had been some kind of structural failure in the dam itself. I think that the outlet works at the base of the dam had a release capability of about 2,000 cubic feet per second. That's 4,000 acre-feet a day. It would have taken something on the order of 100 days to pull the reservoir down to reasonable elevation, and that was unsatisfactory. I think our criteria now says that you have to [be able] evacuate 50 percent of the pool in thirty days.

So the bottom line was, we needed to install a new outlet works, and to do that, we would have to enlarge the diameter of the penetration through the dam or through the abutments and put a bigger conduit in place. And to do that, we were going to have to rearrange the penstock that serviced the powerplant. The logical place to come through with the new penetration was in the vicinity of the powerplant,

Safety of dams issues at Roosevelt Dam on the Salt River Project and how they affected CAP

New outlet works at Roosevelt Dam were necessary

and that would change the entire hydraulic aspects in the old powerplant. But by the same token, the Salt River Project, which operated the powerplant and was entitled to the output from that powerplant, didn't want to change the characteristics of the plant itself in terms of the installed capacity, the generation capability of the plant.

So I worked with John Smart and Bill Anderson and Bill Fraiser from the Denver office. And that was the first time I'd really worked with any of the Senior Division Chiefs from the E&R Center. We worked on the Project Management Team for the Roosevelt modifications. The kinds of things I did was to ensure that the financial resources were available, we got the appropriations. I mean, it was my role on the team was to ensure that the appropriations were available, or the contributions were available, the funds were available to discharge the program that we had laid out, and the commitments on all prerequisites, the land resources, the relocations, the environmental aspects, the cultural resource aspects had all been handled. I mean, that was kind of my part of the management of the overall program.

But I had a chance now to see what went into actually building a major structure like Roosevelt Dam, and I got to be involved in the design briefings. Of course, those were of more interest to John Smart or to Bill Anderson than me, but I found them to be very much of interest. And of course, Don Anderson and Bill Fraiser were more involved in the constructibility aspects -- can we reasonably be expected to construct it in this fashion?

One issue that came up as a result of this new penetration that we were going to put in the dam to construct the new outlet works was, how

Working on the project management team for safety of dams work at Roosevelt Dam

Morton handles the prerequisites to Roosevelt Dam modifications

Issues related to the new turbine in the powerplant at Roosevelt Dam

do we deal with the turbine for the powerplant. There were six senior managers on the Project Management Team, three out of the Denver office and two out of the Phoenix office and the Salt River Project had a representative on the team. And it was always the Salt River Project's view that whatever was done should leave them whole, first of all, shouldn't be at any loss of benefit to the Salt River Project. They should come out whole in the end, that we should provide replacement for any disruption, intermediate disruptions that would occur as a result of construction, and that it shouldn't cost them any more to operate and maintain than what their traditional cost, historical cost had been. So it was pretty easy to know where Salt River was coming from.

So we had to face this issue of what do we do with the new turbine. We were going to have to operate at much higher heads as a result of the fact that the new reservoir would store water at much higher elevations. So we had to put a new turbine in to strengthen it. It was the design staff, and Bill Anderson's organization was of the opinion, that they could build the turbine within the existing scroll case of the existing turbine. In other words, they could go in and remove the steel that formed the existing turbine, and within that confined space, build a stronger and new turbine that would provide the same efficiency and would provide the same hydraulic capabilities that were in the existing turbines. That was a major debate amongst Salt River Project, amongst the construction engineers who were going to have to oversee the construction. To a man, all three of those people said, "There's no way that this can happen. This is impossible. You cannot erect a turbine inside the existing concrete form of the old

Salt River Project's position regarding modifications to the powerplant at Roosevelt Dam

Some Reclamation staff recommended constructing a new and stronger turbine within the existing scroll case an approach other engineers felt couldn't be successful

turbine. You just can't do that. You can't get a crane in there. You can't weld in there. There's not enough clearance to do any of the mechanical aspects of assembling the turbine in this confined space."

So a member, Dan Drake by name, a member of Bill Frasier's [Anderson's] staff, developed at home a model of the new turbine. The designers had designed the turbine at least on paper, what the new turbine had to be, and he created a scale model of the new turbine and proceeded to slice it up into pieces, and he found that he could create seven pieces of the turbine and move those with relatively light equipment, move those seven pieces into and still have enough room to weld all the way around and to X-ray those welds. He created this model and he physically put the model back together within the confined space of the original case, the original scroll case, of the existing turbine.

Nobody believed that could be done, and yet he would hand them the blocks that represented the model, the scale model, and say, "Well, you go ahead and put it together inside there." And they would, and it would fit. People were just flabbergasted.

We went out to SRP [Salt River Project], Dan and Bill Anderson and I went out to the corporate offices of the Salt River Project and went in and met with the Chief Engineer for the Salt River Project, and he was firmly convinced that there was no way that it could be constructed in the fashion that we'd described to him. Dan handed him the model and they all agreed that, yeah, this is what needs to be built and, yeah, this is the space that it needs to be built in. And so he took the model apart and he says, "Now put it together inside that space." He did, and from then on everyone was convinced it could be done. And

Dan Drake develops a model to show how a new turbine could be erected within the existing scroll case at Roosevelt Dam

Convincing the skeptics that the new turbine could be installed in the existing scroll case at Roosevelt Dam

in fact, we issued the spec, and a firm by the name of Nerpic built the turbine within the space of the existing turbine.

So it was an excellent case in the ingenuity of some of Reclamation's engineers not only to solve a technical problem, but then to turn around and sell that solution to, I don't know, Dan probably made that presentation to, well, there was a board of consultants, to his own Division Chief, to the management at the E&R Center, to the Project Management Team, to the Chief Engineer of the Salt River Project. You know, five or six different groups or individuals that he had to sell this concept to before he'd be allowed to proceed with laying out the specifications. I just thought that was a very ingenious operation. First of all, it saved us from tearing down the whole powerplant and starting from the ground up and building up. I mean, the normal conventional solution would have been to demolish everything that was there before and start from the ground up and rebuild everything. Just perseverance and ingenuity by some of the design staff in Denver really paid off with the cost savings as well as a time saving.

A lot of constructibility issues similar to that unique aspect of Roosevelt, once again, was the intake structure, which they bored in the lake and then basically put a cork in the top of it and evacuated it, pumped all the water out and then went in and lined inside of -- we call it the lake tap. And it was ingenious the way that they were able to, underwater, in a 150 feet of water, set a template on the side of the mountain, underground, and bench off the side of that mountain so that it would form the intake structure for the lake tap and then actually tap the lake by putting a bulkhead on a -- I think, it was

The new turbine at Roosevelt Dam demonstrates the ingenuity of Reclamation's engineers in dealing with technical problems

Dan Drake's solution avoided the traditional approach of demolishing the entire powerplant and powerhouse

The new intake structure and its construction at Roosevelt Dam presented interesting issues

about sixteen foot in diameter, bored cylinder that was bored right into the rock, the rock formation, and then sealed with a bulkhead and the lake water all pumped out, and then people could go in there and work. Bore upstream from the downstream location until you intercepted the lake tap and it had all been evacuated, and you had this column of water sitting over your head, but it had all been pumped out of the vertical bore that formed the tap in the lake. It was kind of ingenious just to see that kind of thing. It's nothing I'd been associated with up until that point in my career.

Storey: But then you have to control this outlet.

Morton: Oh, yeah. Yeah, you've got gates to control it. The bulkhead is actually mounted on the side of the dam, and you can submerge the bulkhead by taking water -- you can control the intake of water into the bulkhead so that you sink the bulkhead down over the top of the intake structure.

Storey: Or you can blow the water out, I guess.

Morton: Well, you can blow the water out, but when you blow it out, you've got to have something to keep it from coming back in, so you still have to have your bulkhead there, yeah. It's kind of like a submarine without any motor.

Storey: However, the objective is to have an outlet, right? So I mean, eventually, that bulkhead's got to be removed?

Morton: Yes. The bulkhead was removed and is now mounted on the dam, so if they ever have to go in upstream of the control gates and repair, maintain, inspect --

Storey: Dewater for whatever reason.

Morton: -- they can put the bulkhead back on top of the lake tap, dewater the lake tap, and actually walk right upstream. You open the gate and walk right up the penstock and you can look up and it's, I don't know, eighty or a hundred feet to the bulkhead that's sitting up over your head. It's like a big shaft inside the mountain that forms the left abutment of the dam.

Storey: One of the things that I'm interested in about Roosevelt, if I understand it, the project was basically sold as a safety of dams project. Yet I'm hearing that there's additional storage there for the Salt River Project, I think.

Morton: Well, I don't mean to imply that.

Storey: Okay. Then I had misunderstood something that was said earlier.

Morton: About one-third of the costs of Roosevelt modification is allocated to safety of dams. The other two-thirds is allocated to CAP. It was sold as a combined solution, I guess. Not solely for safety of dams purposes, not solely for CAP purposes. Well, let's just say from 1980 through 1983, late '83, we had two parallel formulations examining Roosevelt Dam as one of the alternative solutions. We had a formulation ongoing relative to CAP to, one, conserve spills from the Salt River system which would have been a function of Orme Dam had it been built, flood control for the greater Phoenix area, flatwater recreation in the greater Phoenix area and potentially some hydropower. Those were all authorized functions of Orme Dam, and now we

How the safety of dams, flatwater recreation, flood control, and new storage at Roosevelt Dam work

were looking at moving those functions to Roosevelt Dam as an alternative to Orme.

So that formulation kind of went on independently as a CAP activity. At the same time, as a result of the Dam Safety Act, the Reclamation Dam Safety Act of '78, [fn -- The Reclamation Safety of Dams Act of 1978, Public Law 95-578; 92 Stat. 2471] we had initiated formulations of, how do we ensure that Roosevelt Dam will operate safely under in-flow design flood conditions, under maximum probable flood conditions, and under maximum credible seismic conditions to the extent that we get an earthquake of, what do they call it, maximum credible earthquake, MCE. To the extent that we get one of these MCEs, what does that mean in terms of this Roosevelt Dam?

So in the early eighties, of course, we were doing a lot of structural analysis. We were taking borings through the dam, both vertically and horizontally, to determine the bond strength of the concrete and all that kind of stuff to ascertain what would happen structurally under an earthquake situation. The other charge that we were given in the Dam Safety Act was to examine the hydrologic aspects of floods, and determine whether or not the spillways could safely discharge the maximum probable flood without overtopping the dam or causing structural failure of the dam.

So those two went on in kind of divergent paths, and it was probably in mid-'83 or so that we said, "Hey, now wait a minute guys, we're talking about doing some work at Roosevelt Dam for two different reasons, but, in fact, we could realize some economies of scale if we combined these formulations." So it was about the time we were getting ready to prepare, put out the draft Environmental Impact Statement, that we came to

*In the early 1980s
Reclamation combined
dam safety needs and
flood control needs on the
Salt River*

the realization that Roosevelt Dam or modifications to Roosevelt Dam was looking like a pretty good alternative for CAP. And obviously it was a mandatory alternative. Something had to be done to correct the safety deficiencies that were existent there. I mean, it was mandated by the Safety of Dams Act.

So it was quite obvious that at that time when it became real high on our list as far as a CAP alternative, it became obvious that we needed to combine those two formulations, and we did. What we ended up with was kind of a mixed bag. We found out that for structural safety purposes under the MCE, we had to increase the coefficient of friction between the dam and the foundation, because under MCE, a maximum credible earthquake, the dam could potentially move and there could be a failure, a slip failure, that could occur on the dam. The way to resolve that was to provide more adequate drainage from the abutments. The seepage from the lake is coming around the abutments and the shear planes in the natural rock in the abutments, in order to reduce that, one way was to dewater or move the water away, that was providing the lubrication under the maximum credible earthquake.

So one of the things that we did was to put in drainage galleries and the drainage added along the toe of the dam to bring that water through and to limit the amount of lubrication that could occur in the natural sets and joints of the foundation. The other thing, of course, was the spillways. I can't remember the precise number, but it was like 300,000 cubic feet per second was going to be the theoretical maximum probable flood. The spillways were designed for about a 150,000 cubic feet per second.

Increasing the coefficient of friction between Roosevelt Dam and its abutments

One solution, of course, was to go in and just make the spillways substantially larger, but there's three dams immediately downstream from Roosevelt and each of those also had undersized spillways in that case. So, if you enlarged the Roosevelt spillways, then you would have to enlarge the Horse Mesa, Mormon Flat, and Stewart Mountain spillways to take into account this increased peak discharge associated with maximum probable flood.

So the formulation, basically, was one to surcharge, to store for a short period of time, the volume of water that is associated with this peak discharge and then let it out over a period of ten days or so to evacuate whatever that volume is that you stored. We concluded that there was about 800,000 acre-feet of surcharge that would be necessary to limit your releases to a 150,000 cubic feet per second. So, of the volume in that flood, you'd have to store about 800,000 acre-feet, I think it was, and you could then operate your spillways at 150,000, and that matched the spillway capacities for the three downstream dams. Therefore, you wouldn't have to make any major changes to their spillway capacity to accommodate the maximum probable flood.

So that was the formulation we went through. We also determined that we needed, for flood control, which is a different frequency type of a flood for evaluation purposes, that's a standard project flood that you size your flood control operation against, we needed about 550,000 acre-feet of storage to moderate the flow from 210,000 cubic feet per second down to 50,000. They decided that a reasonable level of flow through Phoenix would be 50,000 cubic feet per second under this standard project flood criteria. So we needed 550, because the operation

The problem with enlarging Roosevelt Dam spillways to pass a maximum probable flood

Rather than increase spillway size to pass a flood of 300,000 cubic feet per second, it was decided to store the water behind Roosevelt Dam should the situation arise

Sizing Roosevelt Dam for a normal flood situation

would not be exactly the same. The net effect was that the 550 --

END OF SIDE 2, TAPE 2. JULY 17, 1996.

BEGINNING OF SIDE 1, TAPE 3. JULY 17, 1996.

Storey: [This is tape 3 of an] interview by Brit Storey with Larry Morton on July the 17th, 1996.

Morton: Neither was all of the 550,000 acre-feet encompassed within the 800,000 acre-feet. So as it worked out for the combination of flood control plus safety of dams surcharge space, we needed in combination about a million acre-feet, not 1,350,000, not 800,000, but we needed about a million acre-feet to take care of the combination.

So that was what went into the design or the formulation for the combination of CAP flood control and SRP safety of dams, was about a million acre-feet of temporary storage, short-term storage, to manage both the standard project flood from an inflow of 210,000 acre-feet down to 50,000 acre-feet and to manage a maximum probable flood of roughly 300,000 cubic feet per second down to the spillway capacity of 150,000. So those two formulations went together.

Then we concluded that it made some sense to incorporate additional capacity for water conservation, and we ran a number of operation studies to evaluate how much that capacity should be from an economic perspective, and we really didn't get to a maximum -- what do I want to call it? The operation was such that we had other constraints that limited how much we could conserve as we economically moved out -- for a dollar invested in raising the height of the dam to create additional storage, we were still getting more than a dollar's worth of water conservation

Incorporation of additional water conservation space in Roosevelt Dam was determined to be cost effective

benefits. So we never achieved the optimal size, because what we found is, we started getting into a take area that was going to impact a number of -- we were going to have to relocate a number of people. People had built houses around the lake, and generally the houses were above elevation 2,175. So there was kind of a break in cost up to 2,175, our additional cost, incremental cost, was relatively proportional to the elevation change. We went up a foot, our cost went up \$100,000 acre-feet, we went up two feet, it went up \$200,000. But at about 2,175, all of a sudden our land acquisition and relocation costs went out of sight.

We put two state highways underwater at 2,175, so we'd have to replace them. We flooded out the marina. We flooded out the Roosevelt Lake Estates. We flooded out the Tonto Village. So it was obvious that at anything over 2,175 our relocation costs were just going to become asymptotic, and the formulation didn't really make a lot of sense after that point.

So what we did was we said, well, we can deduct from where we know our flood control space is going to be, we can deduct that difference and compute the elevation that we now have available for conservation. The way it worked out was we had about a fifteen-foot elevation increase that made sense for water conservation, and then you stacked the flood control on top of that, then you stacked the rest of the surcharge on top of that.

So the bottom line was, the dam became seventy-seven feet higher. The first fifteen feet of that seventy-seven-foot increase from elevation 2,136 to elevation 2,151 was now new conservation space. The elevation difference between 2,151 and 2,175 was now the new flood control space. Then if one of these maximum

Roosevelt Dam was not raised to optimal height because settlement and construction around Lake Roosevelt at and above elevation 2,175 made further height uneconomical

"So the bottom line was, the dam became seventy-seven feet higher."

"The first fifteen feet of that seventy-seven-foot increase from elevation 2,136 to elevation 2,151

probable floods occurred, we had the volume necessary to contain that maximum probable flood between 2,175 and 2,218, which is the new top of the dam. So that was kind of the formulation process that we went through.

Then the issue was, well, you've got this new conservation space that you've labeled CAP space. Who gets the yield? That was what came out of the Plan 6 funding agreement negotiations. Salt River Project said for various reasons, one of which was brought up today, "We don't want that because it may require us to comply with RRA, and we're not interested in complying with RRA. When you do all the safety of dams work, we want to get back exactly what we had before. We don't want any benefits assignable to the Salt River Project for fear that if those benefits are assigned, in turn, Reclamation will impose the Reclamation Reform Act on our operation, and we don't want anything to do with RRA."

So that was kind of the attitude that SRP took at that time, and so every time we identified a benefit, we had to find somebody to be the willing recipient of that, other than SRP, because SRP didn't want any new benefits. They wanted to be kept whole, but they didn't want to be the recipient of any new benefits that potentially could be construed as requiring them to comply with RRA.

So we identified four benefits out of the new formulation, one of which was water conservation. The six valley cities stepped forward and agreed to pay a certain sum of money up front for that benefit, and they have done that. Because of the uniqueness of the new turbine that we were going to build, there was a little bit more water that went through the turbine and the turbine operated, because of the higher head,

was now new conservation space. The elevation difference between 2,151 and 2,175 was now the new flood control space. Then if one of these maximum probable floods occurred, we had the volume necessary to contain that maximum probable flood between 2,175 and 2,218, which is the new top of the dam."

How the yield from the new conservation space behind Roosevelt Dam was allocated

Salt River Project refused to take any of the water in the new conservation space because it did not wish to be subject to the provisions of RRA

"SRP . . . wanted to be kept whole, but they didn't want to be the recipient of any new benefits that potentially could be construed as requiring them to comply with RRA. . . ."

Water conserved in the new space behind Roosevelt Dam was taken by six cities in the Salt River Valley

operated to generate a little more electricity. SRP insisted that we put a governor on the unit so that they could not get any more capacity, any more megawatts, out of that unit, out of that generating unit, than what they had historically. But because you had a little more water that had to run through that unit because of this additional water conservation yield, you created more kilowatt hours. The city said, "Well, that energy is as a result of our new water yield. Therefore, we'll buy that, too. Now, we'll buy it in the context that we'll turn around and sell it to SRP." So the direct beneficiary is SRP. They generate a few more kilowatt hours and it goes into their grid. But the cities have bought it and SRP's paying them for that energy. So there's no net benefit to SRP. They're paying at cost, what the cost is, of creating that additional amount of energy.

The third aspect was you've created a much larger lake, at least a more stable lake. As a result of that, you have much more opportunity for recreation. In this case, since the reservoir was entirely within the Tonto National Forest, we turned the recreational benefits over to Tonto to manage. So in fact, the Tonto National Forest has got about \$42 million worth of new campgrounds, day-use areas, picnic grounds, boat launching ramps, etc., that are being used by the general public. Under their new Forest Service Management Act, they're collecting anywhere from \$4 to \$10 a day for the use of those facilities. In turn, 80 percent of the revenues that they collect stays within the forest for operation and maintenance purposes.

Then the fourth benefit was the flood control benefit, which we talked about the other day. I think I mentioned that normally flood control is a Federal function and is a nonreimbursable function, but since it did provide

SRP wanted a governor on the new turbine to ensure they didn't get more electricity than previously

Tonto National Forest agreed to assume management of Federal lands around Lake Roosevelt for recreational purposes

Tonto National Forest now manages recreation facilities constructed at a cost of about \$42,000,000 at Lake Roosevelt

Under the new Forest Service Management Act, Tonto National Forest charges use fees and keeps 80% of them for use on the Forest

Flood control benefits from Lake Roosevelt

a major benefit to Maricopa County by reducing flood damages, we were able to convince the Maricopa County Board of Supervisors and the Flood Control District to pay something for that. I think we got about \$11.3 million out of the Flood Control District up front to defray some of the cost of the flood control that we put at Roosevelt. So we got four benefits out of Roosevelt. We identified a direct beneficiary that was outside of the Salt River Project, and were able to proceed with the construction of Roosevelt Dam.

Storey: This has raised a series of more questions, as usual. I think we discussed before why SRP was not previously subject to the acreage limitations. Did we? I don't remember.

Morton: I don't know that we did.

Storey: And why they would be struggling so hard to stay out, I think is understandable.

SRP and why it stayed away from any RRA involvement

Morton: Well, the bottom line is that they were a paid-out project, and so it was always their view that as a result of their payout and as a result of the Reclamation Reform Act of '74, they paid out before the new Reclamation --

Storey: '83, I think.[fn -- Reclamation Reform Act of 1982 (96 Stat. 1263; 43 U.S.C. § 390aa)]

Morton: '83, is that what it was?

Storey: '83, '84, maybe.

Morton: Yeah, that's right. Because it came up in the SOD formulation. There was this inherent fear that the rules and regulations that weren't yet written

would somehow attach to the Salt River Project if they took any benefit at all from the government. So, yeah, that's right. So the bottom line is, the Salt River Project was paid out in about, right around '70, it seems to me, '71, maybe. It's an old project. They began paying out in --

Storey: It's one of the very earliest.

Morton: Right. The dam was completed in 1911. The care, operation, and maintenance and, I would guess, that the repayment was initiated with the O&M contract that was executed in '17, 1917 contract. But I know that they refinanced some of their debt, or deferred some of their debt during the Depression in the mid-thirties. They couldn't make their payments, so it seems to me that it was '71, '72, that they were finally paid out. So by the time RRA came along, they were outside, if you will, the purview of RRA in terms of their reporting requirements and delivery requirements and so on.

Storey: Is that interpretation something Reclamation Solicitors agreed with?

Morton: Well, they haven't directed us to enforce RRA, let's put it that way.

Storey: But what about the acreage limitations? They still would have applied.

Morton: Well, I think you're right, but for some reason they don't apply to SRP.

Storey: are there?

Corps of Engineers

BEGIN SIDE 1, TAPE 1. SEPTEMBER 3, 1996.

Storey: This is Brit Allan Storey, Senior Historian at the Bureau of Reclamation, interviewing Larry Morton, the Assistant Area Manager in the Phoenix Area Office, in his offices, on September 3, 1996, at about eleven o'clock in the morning. This is tape one.

You were just telling me that since I was here last, the budget has taken a twist that's unusual for CAP. Would you like to tell me about that, please?

Congress reduced Reclamation's budget for CAP in FY96 by 13 to 20 million dollars

Morton: Well, like I said, since my memory, the Arizona congressional delegation has generally been supportive of the administration's budget requests for CAP. Many times the delegation has attempted to write in additional funding over and above what the administration has requested. For the current fiscal year, or the forthcoming fiscal year, 1997, Reclamation had asked for about \$71 million as a budget request, and we felt like that was a reasonable sum. It allowed for ongoing work, close out contracts at Waddell and Roosevelt, allowed us to continue the construction of the Navajo generating plant scrubbers, it provided for about \$26 million worth of work on the Indian Distribution Division, and allowed us to continue to closure the recreation developments at Waddell and Roosevelt.

Back last early June, I guess, Congressman [Jim] Kolbe, who is a representative from District 5 in Arizona and a member of the Appropriations Committee, had requested CAWCD to identify any cuts that they felt like could reasonably be made in the Central Arizona Project budget, and CAWCD, in a letter back to Congressman Kolbe, indicated that they felt like the CAP budget could

be cut upwards of \$20 million without doing any undue damage to their ongoing program.

Congressman Kolbe, on the floor of the House in late July, introduced an amendment to the appropriations bill that would delete \$20 million from the bill, and about a week later Congressman [Senator Jon] Kyl provided an amendment on the floor of the Senate that provided for a \$13 million cut over the administration's request.

The net effect of those two recommendations will be heard in the Conference Committee this month, in September, and hopefully we'll have some understanding of what our resulting budget will be before the beginning of fiscal year '97 in October. So for the last couple, three weeks we've been busy trying to explain to both the Congressman's and the Senator's staffs, as well as the CAWCD staff, what the specifics of our budget requests were and how cuts of that magnitude will endanger a number of ongoing contracts, as well as jeopardize the government's position on some claims and some other very costly activities that we have under way.

We have a Request for Equitable Adjustment with J.A. Jones on Roosevelt in the amount of about \$4.5 million, that if we don't have the non-contract funds to pay our Reclamation staff costs, we'll be unable to resolve that request and we'll end up *de facto* paying the contractor the amount of his claim. And we have several other claims in that same status, that if we don't defend the interests of the United States, the contractor, by default, will receive the full value of his claim, even though the claim may lack sufficient merit to even be tried before the Board of Contract Appeals or before the Court of Claims. We think that the request to cut

How proposed budget reductions might affect Reclamation and CAP

Reclamation's budget was ill-advised in view of the cost that it may engender to the United States. So we've been busy over the last several weeks, as I said, trying to explain that to the congressional staffs, as well as our Washington staff.

Storey: A number of those things—for instance, the scrubbers at Navajo—do they take priority, or how does this work out as you're looking at how to deal with I presume a minimum of a \$13 million cut and a maximum of a \$20 million cut?

Morton: Well, of course, each individual contract has some priority. Ongoing contracts tend to take priority over to-be-awarded contracts. In the case of the scrubbers, because of the fact that it's a number of entities that have gone together, it's a consortium of five entities that are involved in construction of the scrubbers, Reclamation is not acting on its own in this instance. We are part of a group. We provide 24 percent of the cost of the scrubbers. It's a commitment that the Secretary made in response to settlement of a lawsuit, so it definitely has a higher priority than perhaps yet-to-be-awarded contracts for recreation replacement facilities at New Waddell Reservoir, for example. It would be much higher than that.

Certainly things like claims and Requests for Equitable Adjustment, depending on their order of magnitude, may be signed off on rather than contested. Certain work that can be delayed will be delayed. Case in point might be the recreation development at Roosevelt. The Forest Service is somewhat behind in their activities. I think we had about \$3.5 million budgeted for fiscal year '97. They've diverted a lot of their recreation staff, their planning staff, to fight fire this summer. The fire fighting season had been

rather long and intensive in the western United States this last summer. So they've fallen behind somewhat. Whether they could play catch-up in 1997 remains to be seen, but in all likelihood the funds that we have budgeted for '97 could be deferred for at least a year and not set the Forest Service too far behind in their recreation development activities.

So there's some opportunities to slip lower priority items. The higher priority items are probably those things associated with long-standing contracts, like the Navajo generating station, resolution of litigation either through judgments or through negotiated settlements as occurred on Navajo. Trust assets—we try to elevate things like Indian distribution systems and programs associated with Indian water rights settlements. We try to afford them fairly high priority in the scheme of funding. Then contracts that we presently have under way that are near to be completed, within three months of completion, as is the case with the outdoor center at Lake Pleasant. We would try to complete that. Hopefully, we'll have sufficient funds to at least achieve that level of priorities.

Storey: Do you have any sense of why CAWCD made this kind of a recommendation?

Why did CAWCD recommend a 20 million decrease in CAP appropriations?

Morton: Personally, I think that it was more of a misunderstanding as to the budget requests. CAWCD is of the opinion that Reclamation should be downsizing, which we have been doing. As of last Friday, the Phoenix Area Office was down to 305 from a peak of about 685. We're in the process of running a RIF [reduction in force] that will become effective September 28th. There will be at least fifteen individuals will be separated at that time. We have another, I believe

it's forty-five individuals, scheduled to either resign or retire between September 1st '96 and March 31st '97. And we probably will need to be down to a total level of employment of about 120 by the start of fiscal year '98, October 1, 1997. So we do have a plan for downsizing.

I think that CAWCD is of the opinion that we're not moving ahead as rapidly as they would like to see the downsizing occur, that based on their correspondence with the Congressmen, it would appear that they feel we should come down, we should decrease in size much more rapidly, and for that reason they've recommended that Congress delete funds for non-contract costs, which are basically federal employee salaries. I don't know if that's much of a cost-saving measure, because like I said, if you don't have federal employees to administer contracts and inspect construction work, you either get a poor product or you end up paying substantially in claims because you're unable to defend the position of the United States in any claims disputes or any contract disputes.

So I think it was a lack of understanding or knowledge on the part of CAWCD to say that even though the facilities were operational, that the job was now done, because it certainly was not the case. Typically within Reclamation there's a lot of contract administration work, a lot of contract close-out work, a lot of documentation that takes place after a facility is complete. If you recall, back in April — was it April, March? I forgot now.

Storey: We started in April.

Morton: Well, we had a dedication for the completion of the Roosevelt Dam. I can't remember the exact

***CAWCD may want to see
Reclamation downsize
faster on CAP***

date. But CAWCD pointed to that and said, "Look, the Salt River Project and Reclamation have already dedicated the dam. The work is done. Therefore we shouldn't be budgeting \$9 million worth of additional work."

Well, unfortunately there's \$9 million worth of additional work to be done, irrespective of whether the dam is operational or not. The facts of the situation are that we have commitments with regard to protection of endangered species. We have commitments with regard to recreation facilities, and we have contract close-out and claims that we have to resolve with the principal contractors who have completed their work, but they're still entitled to their day in the sun, so to speak, and are entitled to receive considerations for what they felt is owed to them. So we have to evaluate their claims and Requests for Equitable Adjustment and try and resolve and reach closure on how much money they're still owed to be paid by the United States for the contracts that they have completed. That's all work that's got to be done.

And then, typically, based on a job the size of the Roosevelt modifications, \$420-, \$430 million program, we document the construction activities with a technical record of construction. The contract files will have to be closed out and archived. That all takes some time. And by eliminating the salaries of the people that do that for the Federal Government doesn't mean it's not something that still is required to be done. It's need to be accomplished before the job's completed. So we're kind of left in a quandary.

I think there would be others within Reclamation who feel perhaps that this retaliation on the part of CAWCD for opposition to the lawsuit that they filed with regard to their

Some may believe CAWCD is trying to prevent completion of endangered species commitments

repayment obligation, that it's retaliation for the position that the Federal Government has taken with regard to protection of endangered species by agreeing to effectuate reasonable and prudent alternatives to protect endangered species against jeopardy. CAWCD's taken opposition to that. They don't want any additional funds to be expended on behalf of native fish, for example, in Central Arizona, and they've moved, through guidance to the Congressmen, they've moved to essentially take away our ability to provide for that protection.

Storey: Would that in any way jeopardize the project, the functioning of the project?

Morton: Well, it certainly wouldn't jeopardize the ability of the project to function, but certainly would open the project up to additional litigation for the United States not following through on its protection commitments. There have been at least two instances where the United States has been threatened with suit to enjoin CAWCD from delivering water if we don't follow through or don't meet our commitments.

Neither of those instances resulted in litigation at this time, but that doesn't mean that they won't. Certainly if we're prohibited by lack of appropriations from following through on our commitments, I would think that the organizations that have opposed the development of the Central Arizona Project would file suit to prohibit waters being delivered if, in fact, [it was] the opinion of the Fish and Wildlife Service that that operation would jeopardize an endangered species.

Storey: Has there been any movement on the suit between CAWCD and Reclamation since we last talked?

Lawsuits regarding delivery of water by CAWCD may result of endangered species commitments aren't met

Morton: Well, we're still in the discovery phase. I think I saw a status report that indicated that over 500,000 individual records had been enrolled in an automated system by one of our contractors — or by a Justice Department contractor. The Justice Department has contracted for an automated records management service out of Washington, D.C.

The contractor is named CACI, and they've done about a half a million pages in Phoenix and about, if I remember right, 125,000 pages in Boulder City, and I think they're working in Denver this week and they expect to copy about 75,000 pages in Denver. They have a collection at the Western Area Power Administration here in Phoenix of about 50,000 pages that they'll have to copy, and I'm not sure that they've got a good estimate yet on what's in the Washington, D.C., offices, both in the department and in Reclamation. There's a small collection that's been identified at Fish and Wildlife Service, as well, here locally in Phoenix. I think that by the time they're done, they will have copied and put on CD-ROMs at least a million pages of material, discoverable material, in reference to the lawsuit. Then, of course, those pages will all be indexed and cross-indexed and key words identified, and I suspect that that process will take some time.

The lawsuit between Reclamation and CAWCD is in the discovery phase

Storey: And then they have to read it.

Morton: And then the attorneys, the plaintiff's attorneys will read it and the defense attorneys with the Department of Justice will read it, and I would presume that the United States, through the Justice Department, has filed a first set of interrogatories and a first set of document production requests with the court.

As far as I know, we have not received anything of substance from CAWCD at the moment. We have received initial responses that basically say that anything they have on the subject has already been furnished to the United States, but I don't think, based on the amount of document production that the United States is doing, in comparison to what we've seen from CAWCD, which amounts to about maybe a thousand sheets of paper. The orders of magnitude of the information that's been produced are nowhere near similar, so I suspect that there will be additional requests for production of documents and additional interrogatories go back to CAWCD. I think this discovery process will take a very long time, based on what's been going on to date.

Storey: Now, this process we're going through in terms — I believe we're putting it on CDS and then we're doing all of this cross-indexing and everything. Did CAWCD request that? Who made the decision that that was necessary and appropriate?

Morton: Actually, the decision, the recommendation was made by the Justice Department attorneys. When they looked at the magnitude of the material that would be involved, they concluded that it was very similar to an earlier experience that they had had. The lead attorney for the Justice Department had also worked on the WPPSS case, the Washington —

Storey: Public Power [Supply] System.

Morton: Public Power System case, the very large bankruptcy that involved the state of Washington utility, and based on the comparison, it was determined that the automated records

management system would be significantly useful and very much cost-saving, both to the United States and to the plaintiffs in this case. The storage of copies and the multitude of copies that would have to be made to ensure that all the attorneys had at hand the reference materials and the specific references that would be referred to in any trial would be monumental, so he kind of concluded it would be just as easy to have a cross-indexed CD-ROM that all the attorneys could read from, both individually and in court, and would simplify the presentations before the judge, if we actually get to trying the case before the judge.

Storey: It's amazing. Is there anything else we should talk about in this process right now, do you think?

Morton: Well, it's kind of a nebulous process. Like I said, we're in interrogatories. That's close to a thousand pages right there of depositions, sitting there [taps stack of paper] on my desk. I've been instructed to peruse those for deficiencies or identify additional questions that would be appropriate for the U.S. to ask of the individuals who are deposed. These are all former or current Reclamation employees, everybody from Dan Beard to John Newman to Randy Chandler.

The plaintiff's attorneys have conducted these depositions and have reserved the right to recall these witnesses, and at the time that we go to recall, then the U.S. attorneys can ask additional questions, clarify any issues. Several of us who are somewhat familiar with the repayment contracts and the O&M contracts that are in dispute have been asked to review the depositions and identify things that would be good to clarify.

Storey: So this is consuming a lot of Reclamation's staff time, as well as Justice Department time?

Morton: Oh yeah.

Storey: And, of course, one of the ironies, I guess, of this is that this is cost-reimbursable time. Is that right?

Morton: Well, we're not using appropriated dollars for this litigation effort. We're using revenues. And in fact, the revenues, dollar per dollar, are a cost that goes against CAWCD. For every dollar that's spent in administering the litigation from the federal side, there's a dollar less available in the Development Fund to assist CAWCD's repayment. So right now —and this is in contest, of course, but right now, today, CAWCD owes the United States \$19,350,000. They haven't paid their bill.

How Reclamation pays expenses for the lawsuit with CAWCD

As revenues accrue in the Development Fund from commercial power sales and from other miscellaneous activities, land leases and so on, after the fund has paid all of its O&M expenses, whatever is left over at the end of the year is available to assist in repayment. So if we charge the Development Fund \$10.00 for litigation, that means there's \$10.00 less available in the Development Fund to assist in repayment. Now, CAWCD maintains they don't owe any money anyhow, so maybe that's of no concern to them. But the bottom line is that Congress made the Development Fund, designed the Development Fund to be used for operation expenses associated with the project, and we believe that administration of the repayment contract is part of the operational expenses of the project, and they're, therefore, justified in charging it against the revenues that accrue in the Development Fund. It is a costly proposition, whether it's a cost to the United States or a cost to CAWCD or a cost that'll be shared by both. I imagine that won't be resolved until the resolution

of the lawsuit. But, right now, the costs are not being charged against, in the context they're not being charged against the Federal taxpayer in that we're not requesting additional appropriations from Congress.

Storey: From what I'm hearing, it's not strictly, in the strict sense, cost reimbursable because of the way they're being paid.

Morton: That's correct. I mean, it's not like CAWCD has to pay for them twice.

Storey: Right. It's just that they're being deprived of some revenues that they otherwise might have had.

Morton: Correct. Might have had, right.

Storey: Interesting. One of the things I gather or recall from our conversation before was that there's been a change in the general manager at CAWCD. Is part of the issue that we're running into here a personality issue or is it more sort of a shift in policy concerns of the board of CAWCD? Do you have any sense of how that is playing out right now?

Morton: Well, I certainly don't view it as a personality issue. I think it's —

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Morton: I think it's just a change in the perspective of our client. The perspective of our client from 1968 through 1993 was, "Let's get the project built." There was no concern expressed by CAWCD on what the costs of the project were until about 1992. When we negotiated an amended

How CAWCD's attitude toward costs had changed over time

repayment contract, we increased the District's obligation from \$1.2 billion to \$2 billion. That was all done with the knowledge and support of CAWCD. They were a willing partner in the renegotiation of the master repayment contract in 1988, I guess it was. There was no question that the expenditures that were being made were necessary.

But when it became time to initiate repayment, and we announced our intentions to do that in about 1991, CAWCD began at that time to look more carefully at what they were going to be obligated to repay, and it was about that time that we were making judgments on whether the latent defects that we'd identified in the siphons should be repaired, whether there was ample assurance that the siphons could operate for a number of years without the repair, what the relative costs were of effectuating a repair as opposed to what the long-term costs of maintaining the siphons in place, extraordinary maintenance that might arise as a result of damage or failure.

We concluded that it would be appropriate to replace the siphons, at least those that had higher heads or that were in a more precarious position with regard to safety or that had undergone significantly greater deterioration for one reason or another. We consulted with the District and we agreed to pursue that course of action and to capitalize those costs as opposed to turning the siphons over to the District in a less-than-serviceable state and have the District bear the cost of more frequent maintenance and/or future replacement, shorter term replacement costs.

But it was at that time that the District began examining its legal position with regard to those repairs, and I think certainly from my

CAWCD began to look at repayment obligations more carefully as the beginning of repayment approached

perspective and the perspective of everyone in Reclamation, the contract was clear. It says costs of whatsoever kind associated with the repair of the system will become part of CAWCD's repayment obligation. The Board of Directors took exception to that, and I think that was about the time that — when we were talking about making another capital investment of \$150 million to do repairs on the siphons, at the same time that we were talking about initiating repayment to the tune of \$60 to \$80 million a year, was when CAWCD all of a sudden realized that this was going to come out of their pocket, and they were perhaps ill-prepared to deal with outlays of that order of magnitude, especially since simultaneous or concurrent with that the market for agricultural water disappeared.

I think it had always been Reclamation and CAWCD's perspective that by the time repayment was initiated on the aqueduct system, the users of the aqueduct system would be making full use of Arizona's remaining entitlement. We recognized that certainly the Indian communities and the M&I contractors would have a period of build-up, in the case of Indians, as their new lands were developed on Indian reservations for irrigation, and in the case of the domestic users, as their population bases grew. While their allocations were based on expected populations in the 2020 to 2030 timeframe, they initially would only be taking about half of their entitlements, and that would grow over time and would peak out in the early twenty-first century. But non-Indian agriculture was supposed to pick up the slack and, in fact, utilize Arizona's remaining entitlement, even though it was under contract to either Indian communities or M&I users.

But in 1992, we delivered less than one half of Arizona's remaining entitlement, so the

revenues, the income from the sale of water, were down substantially, and more than revenues for repayment, the revenues to actually run the CAWCD, the O&M infrastructure, were not there. The rates that had been established for recovery of operation and maintenance costs were predicated on delivering about a million and a half acre-feet, and, in fact, they were only delivering about 800,000 acre-feet. So CAWCD's O&M budget was substantially undersubscribed. They were only receiving 50 to 60 percent of the revenues that they needed to operate and maintain the aqueduct system, and they were receiving substantially less than what was necessary to make their payments to the United States.

Their long-term plan that was instituted in the 1980s took that into account, at least took into account the fact that their revenues from the sale of water would be insufficient to cover their capital obligations. They had been, from about 1981 through 1992, had been saving money, had been investing surplus funds over that entire period of time, and had a substantial cash reserve of about \$150 million to assist in repayment during this transition period of time, when the capital rates to M&I users and the repayment aspects of the program could transition to full utilization and to full capital component in their rate structure. So they'd envisioned that there would be a seven to twelve-year period of time leading up to the twenty-first century where they would have to withdraw funds from reserve to make their payments to the United States. Well, they found themselves having to use their reserves to pay their O&M costs because they weren't collecting enough from the sale of water to cover their O&M, and then, in turn, jeopardizing their future ability to repay their capital costs to the United States.

So I think that whole combination of factors — higher capital costs, reduced O&M revenues, premature utilization of their reserves — those all factored in, and it became obvious that CAWCD was going to have problems in repaying the United States. And, I think it was at that time they concluded that the United States is charging CAWCD too much. We need to protest that and try and deal with that issue and get our repayment reduced because of the problems in the ag sector and additional costs associated with O&M activities, a greater cost than originally envisioned. They needed a method of reconstituting their repayment obligation, and I think that rather than try and negotiate, they decided to litigate.

In defense of CAWCD, we entered into the long-term, we recognized that there were problems, cash flow types of problems, and we attempted to negotiate those out and provide assistance through advanced O&M payments associated with the Indian waters that are delivered by CAWCD. Back in June of '95, the Secretary concluded he wasn't going to sign that agreement, and I think that's what drove CAWCD to file a lawsuit.

Storey: What kind of advance payments are we talking about? Paying a year in advance or paying a period of years in advance or —

Morton: Well, depending on the time period in negotiation stage, there was about a year in there where various proposals were laid on the table and discussed and negotiated. Somewhere between — well, I think at the very end, the proposal that was embodied in the negotiated agreement that was never consummated, we agreed to pay through an

How the Department of the Interior attempted to assist CAWCD with repayment issues in the early years of repayment

intranet billing process, the United States agreed to pay — or this was the proposal. It was never consummated in agreement. But the proposal was that the United States would pay for the fifty-year O&M charge by consolidating, for Indian water deliveries, would consolidate that in the first twenty-five to twenty-eight years of the project life through a net billing process.

In other words, if CAWCD owed the United States \$80 million in a given year — 1997, for example — and the O&M billing for the delivery of 450,000 acre-feet of Indian water was \$20 million, the United States would only bill CAWCD \$60 million. In other words, the actual annual repayment obligation of CAWCD would be reduced by the net billing of the, would be netted for the O&M costs associated with delivery of the Indian water rights, and we would compress fifty years of water delivery into, like I said, about twenty-eight years. I think it was from 1996 through 2025, and then from 2025 through 2050, there would be no charge for the delivery of Indian water. CAWCD would forego that payment from the United States. So essentially the way it worked out is, we would pay up front for like twenty-eight years of water for a fifty-three year water supply, or for water deliveries over a fifty-three year period, we'd pay for it all in the first twenty-eight years through a net billing procedure. There would be no requirement for appropriations in this instance.

Storey: To do that?

Morton: No, we would not have to go out and get appropriations to do that.

Storey: Do you have any insights into why Secretary [of the Interior] [Bruce] Babbitt did not sign that agreement?

Morton: There's a lot of positions being espoused, but I personally don't have any knowledge. It was one of those last-minute situations that came about. We had a signing ceremony scheduled. We had developed a cooperative press release with CAWCD. CAWCD had made arrangements for a suitable signing ceremony, had a building and all of the stuff that goes along with something as formal as that, and the Secretary was here in Arizona at the time and at the last minute we received a communication from the Washington public affairs staff that the Secretary had been called back to Washington and that the signing ceremony would have to be delayed or canceled, and that was the last we heard.

Storey: Was I understanding that you were saying that we would deduct their full-cost billing per year from the bill for twenty-eight years, and then in effect we would have twenty-two years where we didn't pay anything?

Morton: It worked out to about — we were evaluating the period from either 1996 or 1997 through 2050, and that was the period of our analysis. We did a present-value analysis, showing how much we would have paid, how much the United States would have paid in fixed O&M charges to CAWCD for the water that was being reserved for Indians. We computed what that would be over that fifty-three year period of time, and then we took that present value and annualized it through 2025, I believe it was. And so we agreed to pay more up front for relief for the latter half of that period of time.

Net valuwewise, it was the same sum of money, but the cash flow all occurred at the front end of the period rather than over the entire period of time. So the intent was to financially assist

CAWCD during this period of twenty or twenty-five years, twenty-seven years, while the rate structure for capital repayment on M&I and the M&I growth built out to what it was supposed to max out to be, so that their financial income and debt service was essentially even at that time. We kind of filled in this triangular wedge of cash flow shortage that in our earlier analyses would have been taken care of, wouldn't have gone on nearly as long and would have been taken care of by reserves that would have been built up over the preceding twelve to fifteen years. And those reserves, in turn, were insufficient to carry them out twenty-five or twenty-seven years, so this was another financial methodology of ensuring the solvency of CAWCD while not engendering to the United States any additional financial impact. The impact to the United States would be exactly the same in either scenario. It's just it would be a little bit heavier on the front end and significantly reduced at the end of the time period.

Storey: Is there anything else we should talk about, about CAWCD and these issues right now?

Morton: Not much more we can say. We're in litigation because there is a problem in paying CAWCD's obligation and there's a difference of opinion on what the repayment contract requires them to pay.

Storey: Well, what you've been talking about has raised a subsidiary issue that I think is interesting, and that is that right now — Secretary Babbitt, of course, is from a long-standing Arizona family, and former Assistant Secretary Betsy Rieke was also an Arizonan. Did the fact that these folks were from Arizona cause Reclamation any issues or problems over the years? Or maybe help them, for that matter?

How the presence of Secretary of the Interior Babbitt and Assistant Secretary Rieke, both from Arizona, affected CAP

Morton: I don't know that we were either helped or hurt by the fact that Secretary Babbitt and Betsy Rieke were from Arizona. Certainly in the case of the negotiations that went on for, I believe it was like February of '94 through June of '95, that responsibility was specifically assigned to Betsy Rieke, and Betsy appointed a team from within Interior. I mean, the team that negotiated with CAWCD was not a Reclamation team, per se. Well, in that instance, the Phoenix Area Office was not directly involved, was not on the team. We did provide technical support to the team, but we had no representative on the team from the Phoenix Area Office.

Storey: This was for the negotiations that resulted in the agreement, the proposed agreement that we just talked about?

Morton: That never got signed. Right.

Storey: Okay.

Morton: The chair of the team was Don Glaser, who at that time was Reclamation's Director of the Policy Analysis Office in Denver. At the time, I believe either immediately before or immediately after the time that negotiations were suspended or terminated, Don became State Director for BLM in Colorado.

Storey: And today, I gather, came back to Reclamation.

Morton: Oh, is that right? I didn't know that.

Storey: As the Director of the Western Policy Review Team.

Morton: Well nonetheless, Betsy had tapped Don to chair the team, and then there were representatives from the Solicitor's Office, the Bureau of Indian Affairs, and the local Reclamation representative was at that time the Deputy Regional Director, and currently Regional Director, Bob Johnson from the Lower Colorado Region. So these were all people that were known to Betsy, or Betsy knew of or had worked with either as the State Director of the Department of Water Resources when she was in Arizona or had worked with in Washington after she became the Assistant Secretary of the Interior.

So I think that was helpful — that Betsy came from Arizona. She didn't require any education. She knew all of the issues inside and out. She had dealt with them in her previous life as the Director of the Department of Water Resources. She knew all of the players, and I think that was very helpful. But I don't believe she brought any baggage that inhibited those negotiations.

I think that Secretary Babbitt, while he didn't formally recuse himself, kind of had an arm's length perspective on the process. I think he kind of stayed out of the way and let Betsy Rieke and her team deal with the negotiations. What consultative role he might have had, I really am unaware of. On at least two occasions, I participated in briefings for Betsy back in Washington on the technical aspects of the negotiation, but I never did see Secretary Babbitt during those processes. So as far as I was concerned, it was kind of Betsy's show, and she tried to make it work, and unfortunately it didn't work.

At the time that the discussions broke down and were terminated, there were a lot of allegations made in the newspaper about pressures

being brought to bear by the state of Nevada and the state of California that resolution of the CAP repayment issues were tied to somehow resolution of California and Nevada's need for additional water. Of course, we never saw anything that would directly link the two aspects. Certainly, as watermasters for the Colorado River, we had an inherent interest in ensuring the equitable distribution of the waters of the right, but to the extent that the three Lower Basin states were able to work out some accommodation, so long as it didn't adversely affect the repayment capability of CAP, it wasn't adverse to our objectives if something could be worked out in that regard, but we never recognized one being a prerequisite to the other in our discussions here. Perhaps that was the case at higher political levels, but it certainly wasn't apparent from the discussions that we had with CAWCD.

Storey: You've raised an interesting question, which may be a totally dumb question, but let me ask it and see what your response is. Two point eight, I believe, million acre-feet of Colorado River water are allocated to Arizona and, what, about one and a half million to CAP, as I recall. Arizona's not using all of that one point five that's supposed to come through CAP, is that correct?

Why costs for CAP can't be recovered using the Colorado River water not used by CAP

Morton: That's correct.

Storey: So that means it's going somewhere else. Can we charge the people who are using that water for the repayment, for CAWCD's repayment responsibilities?

Morton: Well, I would wholeheartedly expect people on CAWCD's board would like that to happen, but under the law of the river, any time beneficial

consumptive use of seven and a half million acre-feet is not occurring in the Lower Basin and there's an unsubscribed share in one or more of the basin states, the other one or two basin states can utilize it without additional cost over and above what they would pay on an incremental basis to the United States. So I think in the case of M&I water, I think we collect like 25 cents an acre-foot under the Boulder Canyon Act for diversions to California, just for M&I and no charge for irrigation. So the net effect is going to be — No, you can't.

Storey: There isn't any revenues to —

Morton: There isn't any revenues to be raised, and there's no obligation on their part to pay for it

Storey: Some of these things flit through my mind and I think, "Gee, I wonder if. . . ."

Why don't we change tacks for a while. One of the issues I'm particularly interested in is the way computers are used in Reclamation and the way they've affected us over the years. As I recall, back when you first started with Reclamation, you were verifying the results of computer programming as part of — I think it was your student days.

Morton: That's correct.

Storey: Could you reflect for me on computers in Reclamation and how they have changed over the years and how the way we have used them has changed over the years.

Morton: Uh, yeah.

Changes in the uses of computers at Reclamation over the years

END OF SIDE 2, TAPE 1. SEPTEMBER 3, 1996.

BEGINNING OF SIDE 1, TAPE 2. SEPTEMBER 3, 1996.

Storey: Tape two of an interview by Brit Storey with Larry Morton on September 3, 1996.

... when you were first exposed.

Morton: In the early to mid-1960s, 1962, '63, '64. We used a computer for two things, to create paychecks, and I won't even claim that the data processing systems associated with time and attendance were in place at that time because I don't think they were. I think that we still did a lot of unit record equipment sorting of the time and attendance reports. I think they were put on punch cards and were actually compiled with unit record equipment, not really a computer, but a high-speed sorting device. But the checks were actually printed on the computer, and as far as I know, that was the one application.

The other application — and that would be the administrative applications, if you will. The other side that used computers was the highly technical side, high-speed mathematical calculations for technical analyses, whether they were associated with structural analysis or water resource optimization analysis or reservoir operation analysis, but they were "number crunchers," and that's what they were used for, to crunch technical models to produce analytical numbers for decision making for design purposes. And that was generally pretty much what they were used for.

Today, almost everyone has a PC on his or her desk, and the strength of the computer is in information exchange, whether it's e-mail, whether it's moving correspondence back and forth, whether it's searching archives or information that is stored someplace. But it's truly

an information management system that's available to pret[ty] near everybody that works in Reclamation.

Personally, with the exception of the budget, I don't manipulate numbers anymore. The programming tools that are available today are hundreds and thousands of times faster, whether it's for, like I said, structural analysis or water resource optimization, stochastic hydrology, quantitative physics, I don't know. There is just so many more tools and programs that are available for the technical people, but I and probably 95 percent of the Reclamation employees don't avail ourselves of that side of the activity. I'd have to say, of the people who used computers back in early sixties, 95 percent of the people used them to crunch numbers. It's probably the other way around today. It's probably 5 percent use a computer to crunch numbers, and the other 95 percent of the use is in information management and exchange.

And probably, a personal aside here, probably we produce too much information. There's an information overload that comes across on a computer. I can go away for a day, and I'll come back and I have anywhere from twenty to thirty-five or forty computer mail messages sitting in my in-box to read, and probably half of those weren't even worth reading and half of the remaining half would have been marginal, I could have done without them, and maybe ten out of forty actually had some value. And to try and keep track of that information becomes a real problem. You kind of have to — well, you have a trash can or delete button, and that's probably the best thing you can use today is the delete button, is to get rid of that stuff, because it just takes on a life of its own, and to try and store it and effectively recall it at some future date

becomes a monumental task that you shouldn't have to deal with, because a lot of that information is superfluous and extraneous.

Storey: And, of course, we do all of our time on it now and all that.

Morton: Oh, yeah. And then administrative applications, everything is tracked in an automated sense, the time and attendance, personnel records, budget program documents, all of the O&M records associated with water deliveries and associated with maintenance of equipment, movable property, and stores and warehousing. I mean, it's all automated. It's all in the computer.

Storey: Have you also seen effects in the way we move documents, formal documents that have to be turned into paper, through Reclamation and the staffing that's required to do that?

Morton: Yeah. I think that today a lot more people have an opportunity to make input on a formal document, as you put it, whether it be a piece of legislation, whether it be a policy proposal. In the sixties, the problem was, at that time you were still making carbons and you didn't have good copy machines. If you had to make a copy of a document and share it with people, it was on paper that yellowed inside of several days. You'd write on it, and the ink would all smear. You had carbon paper, but you could only manually type one or two or three carbons, however many you could get a good copy of. So to have ten or fifteen people review a document was a major undertaking at that time.

Today, you create on the computer and transmit on the computer, and you can have a formal policy, for example, reviewed by 100 people within Reclamation, all of whom may have

some experience or valuable input to be made. You can have that done in a matter of minutes in terms of transmitting it to them and asking for their review or input on any issue that you'd want.

I think it's an improvement in that you get a better cross-section of viewpoints. On the other hand, it doesn't seem to have helped in getting the product out. You used to have to only get two or three people to sign off on a formal piece of correspondence to go. Now everybody wants to make input. It goes back to Washington. It takes just as long to get a document out of Washington as it did forty years ago, and forty years ago the delay was in, I won't say Pony Express, because that would be too. . . but, you know, they still used trains to transport the mail in that era. Not every parcel of mail went out in airplanes. Very few went out in airplanes in that era.

Most of the time in getting, for example, a formal piece of correspondence to be signed by the Commissioner probably was in moving the document from the point of origin, whether that be in Phoenix or Boulder City, Nevada, or Sacramento, California, to the Commissioner's desk. Now it can get back to the Commissioner's desk inside of two minutes, but another fifty people have to look at it before the Commissioner's going to sign off on it.

I think it's that process, the value-added process that needs to be examined a little better. On many things, review and input from a number of people does add value to the end product. Very often rather inconsequential things, that still have to be signed by the Commissioner, for example, undergo the same kind of scrutiny that a very telling and far-reaching policy might have, and I think it gets the same review. Everybody gets to dot the I's and cross the T's.

That lack of value-added probably delays the end result. So we do control correspondence. We set time limits on control correspondence relative to creating the documentation, as well as creating the outgoing product. The bottom line is, we haven't speeded up the process. We can get it back there at the speed of light, move it across the country and around the world at the speed of light, but the end result still takes the standard fifteen days that it did thirty or forty years ago.

Storey: What about secretarial staffing? Has it been affected?

Morton: Numberwise, no. I think that on a ratio of employees, we probably still have about the same number of secretarial and clerical staff. I don't know that gradewise or salarywise there's been much effect. I think that there was a period of time there, if you could use a word-processing machine, kind of in that transition between the manual typewriters and electric typewriters and then you went to a word processor and then you went to a full-fledged computer, and now they call it office automation on a personnel classification system.

I think that some of the office automation clerks or word-processing clerks in the seventies, when it was just kind of in its infancy. The classification standards resulted in a one grade increase over the more traditional electric typewriter clerk. But I think that's all been leavened out today, and I think that the office automation clerks are now the standard, so maybe that grade structure has slipped back a little bit to what it was, say, in the mid-seventies, for the same type of work, just the fact that you needed more advanced skills. Today, generally the use of word processing on a PC takes no special skills,

per se, I don't think, so that classification didn't really change.

I think that most of the secretaries now are involved more in managing and running the office or more involved in scheduling and transporting. In the old days, if you will, you would dictate to a secretary, dictate a letter to a secretary or use a Dictaphone. [I] remember, Cliff Pugh was prone to dictate at home at night and he'd bring in a whole boxful of tapes the next morning for his secretary to transcribe. I don't see that going on anymore at any levels within any organization.

The secretary, he or she is probably more concerned with calendars and matching up meeting dates and times and ensuring that kind of quality control over the documents and products that are actually produced as opposed to the originator, because most people, that I'm familiar with at least, who originate a document, keystroke enter the document into the computer, become the data entry clerk, if you will. So you've got GS-12s and 13s and 14 engineers and managers doing GS-4 or 5 data entry kind of work. In fact, I think it's faster. I think that the thought process, at least for me the thought process of doing word processing facilitates what I'm doing. In the old days, you'd mark stuff out and erase, and now you can just use the delete key. It's a lot faster from start to finish, I think. But the secretary's not really concerned with the initial production of the document, but rather the quality control on what the end result is, and because of automation, probably works within the organization as a facilitator within the organization as opposed to an independent document producer as maybe that was the primary role thirty years ago, primarily the production of documents.

Storey: There's a topic that we've hit tangentially many times, I think, in our discussions over the last four weeks, and that's Tucson, and water to Tucson, and I don't think we've hit it comprehensively yet. We've hit the location of the aqueduct and the desert tortoise, and then we'd go off on other things. I would sort of like to look comprehensively at the issue of Tucson; how people in Tucson either opposed or supported bringing CAP water there, what kinds of issues were involved in that. I'm fascinated, for instance, with the fact that we deliver water to their water treatment plant, but up the hill we have a Reclamation storage reservoir, and things like that. Could we look at that picture a little bit differently than we have in the past and sort of take a different approach to it today?

Morton: Okay. And where should we start?

Storey: Well, start with — my understanding was, at first Tucson wasn't going to get any CAP water.

Morton: At least not from the Colorado River. The original plan in the forties involved the delivery of about 12,000 acre-feet of San Pedro water, water from the San Pedro River, that would have been stored at Charleston Dam, and pumping that water through a pipeline into the city of Tucson. That was the plan in 1947; that was presented to Congress in 1947.

I really can't speak to why that specific aspect ever became part of the project. I mean, I think that at one time Charleston Dam was probably a project all by itself, and there was a question about the justification for building a dam. I mean, traditionally Reclamation — and I'm not even sure that it was originally a Reclamation vision, but somebody had a vision, and that vision

said, "Gee, there's this really nice dam site at the Charleston Narrows." I know you've heard this before about how Reclamation engineers went out in the twenties and thirties and said, "Let's make a project, because there's a nice dam site." Well, I'm firmly convinced that that was the genesis of Charleston Dam, was that somebody, a mining engineer who lived in Tombstone went riding out one day on his horse and looked out there at the buttes there at Charleston and said, "Gee, that is a beautiful dam site." And it is. It's a very nice dam site.

And that evolved into, "Well, if we've got a dam site and we build a dam and it stores some water and conserves that water, what can we use it for and who can pay for it?" There were several small communities downstream from Charleston — Pomerene, St. David, Benson. There was water that flowed by their diversion structures and was surplus to their water rights, or perceived water rights. The water rights of the San Pedro had yet to be adjudicated under Arizona state law. But because they had used the water for a period of years and knew that in some years there was a water surplus to their needs, and then if they built a storage reservoir, that reservoir could be used to either allow the smaller communities to get bigger or to be used for some other purpose.

In my heart, I think that they concluded, "Well, we really, based on our current agricultural economy and what growth we could see from an additional water supply, the costs could not be paid for by the benefits, the receipts, that might result from that additional water." And so somebody came up with the idea of, "If we just pumped it over the hill to the west into the Santa Cruz Basin and delivered it to Tucson, you've got this big city over there." Tucson was probably,

what, less than 50,000 people, I'm sure, in the 1940 census, 40,000. I don't know exactly. I know that Phoenix was about 60,000, it seems to me, in the 1940 census, and I grew up in Mesa. I think Mesa was about 12,000 in the '40 census. So Tucson was the second-largest city in Arizona, but it had less than 50,000 people, I'm sure, in it in the time period that the Reclamation people were looking at it. And so I think that they concluded that there was a need for some water. [Telephone interruption.]

Storey: You were talking about Charleston Dam and providing water to Tucson and that sort of thing before the interruption.

Morton: As I was saying, I think that the conclusion was that Tucson, in the future, was going to grow, and since CAP was being formulated as a groundwater substitution project, and the city of Tucson was totally on groundwater at that time, in the early forties, that the conclusion was, whatever yield we can create at Charleston Dam that wouldn't adversely affect the downstream water users, we can deliver to Tucson, and if Tucson pays for it at a reasonable rate, it will be competitive with their present groundwater sources. So I think that basically was the genesis of bringing San Pedro water to the city of Tucson.

I'm sure that in that time period, 1944 to 1947, that there was some consultation made with the elected officials in the city of Tucson, and probably Pima County. There were probably some discussions held with the water users in the San Pedro Basin, and I'm sure that nobody expressed any objection to what was being proposed. Here the Bureau of Reclamation proposed to come in and spend millions of dollars on a new dam. The people who lived in the San

Pedro Basin saw it probably as an opportunity for recreation. There was no flat water recreation in the San Pedro Basin, so here was an opportunity to recreate on a lake and have some fishery benefits, some fishing activity and boating. The people in Tucson probably saw this as either a substitution for groundwater or as an adjunct to their groundwater supplies, and I'm sure that the city fathers at that time felt like, yeah, Tucson was going to grow. It had grown substantially from 1940 through the war years, several Air Force bases, a lot of military activity in the area. So I suspect it was met with a very positive reaction in that era.

At that same time, of course, the Colorado River supplies were merely going to the Pinal County area. The Salt-Gila Aqueduct ended at the Gila River basically, and the water was being delivered, proposed to being delivered to the developed irrigation districts that were in central Pinal County, and so there was no extension of the aqueduct system from Pinal County into Pima County and on into Tucson.

As we've discussed earlier, it was just prior to, and concurrent with, the decision and decree that was being laid down by the Supreme Court in *Arizona v. California* that Reclamation picked the ball up again and began examining the situation. At that time, '62-63 time period, we were being employed by the state of Arizona to reexamine and supplement our reports, our earlier reports on the Central Arizona Project.

Of course, the conclusions that came out at that time were, there was a substantially greater need in the city of Tucson than had been envisioned in the forties. The population growth had increased at phenomenal rates both in Phoenix and Tucson metropolitan areas. I think that the '47 report looked at about 70,000 acre-feet

of requirement for municipal and industrial use in the Phoenix area and then the 12,000 in Tucson. I think there was 82,000 acre-feet of M&I water as the proposal in the '47 report.

The population bases and the extrapolated growth for Phoenix and Tucson indicated in the '62 or '63 time period that 100,000 acre-feet of Colorado River water would probably be the right order of magnitude for Tucson, and 200,000 would be the right order of magnitude for Phoenix. The Charleston unit and the San Pedro Aqueduct basically were lifted out of the '47 report and put in the '62 report. I don't think there was a lot of re-analysis done with regard to the effects on the basin or changes that occurred in the San Pedro Basin over that fifteen-year time period. I think that it was just lifted from one report to the other, and the costs were escalated consistent with the engineering cost indices, but I don't recall, at least '62-63 time period, I really don't recall that there was much analysis that went on with regard to San Pedro or the aqueduct from Charleston Dam to Tucson. But the report that we did put out in '62 and then in the subsequent one in '63 looked at a total of 312,000 acre-feet of M&I water as opposed to the preceding report's 82,000 acre-feet. So there was 100,000 of Colorado River water embodied in the delivery to Tucson, plus 12,000 from the San Pedro that would have gone to Tucson.

After authorization I think was probably the time period that the city of Tucson began examining its alternatives, and while they were under no burden to participate, by state law they were necessary to —

END OF SIDE 1, TAPE 2. SEPTEMBER 3, 1996.
BEGINNING OF SIDE 2, TAPE 2. SEPTEMBER 3, 1996.

Morton: Under state law that was passed, I think it was in 1970, Pima County, for all practical purposes — Tucson represented Pima County, certainly in terms of numbers of population — Pima County had to elect or petition to join the Central Arizona Water Conservation District before the District could be established. Under state law, the District had to consist of the three counties — Maricopa, Pinal, and Pima County — and then others that would choose to join; and the county was charged with petitioning the state to establish the Central Arizona Water Conservation District.

All three counties voted affirmatively to join the CAWCD, and so CAWCD was established, '71 I believe, '70 or '71. So the legislation might have been in '69, but the time period was prior to negotiation of the master repayment contract, which was actually the first version of the master repayment contract was executed in '72. So at least in the time period from '62, when we began the re-evaluation process and the authorization process, through '71 or '72, when CAWCD was established as a municipality under state law and became a legal organization within the state of Arizona, Pima County and the city of Tucson were definitely supporters of the Central Arizona Project.

In the early sixties, Congressman Stewart Udall was from Tucson, from the 2nd Congressional District, which is Tucson. He became Secretary of the Interior. His brother, Moe [Morris] Udall, became his replacement from the 2nd District. They were both supporters of the Central Arizona Project. Several — the mayor, for example, in the city of Tucson was an elected

*Tucson and Pima County
Petitioned to join CAWCD*

board member of the Central Arizona Project Association. There were a number of city fathers in the Tucson area that served on the CAPA board, Central Arizona Project Association, which is the principal lobbying group in the state for support of the Central Arizona Project. At least five representatives from the Tucson area were on the original CAWCD board. So there was a lot of support for CAP, at least up until 1971 or '72.

Then Tucson kind of got I won't say lost, but kind of became a lower priority. The aqueduct was going to be built from the Colorado River to Phoenix and then on to Tucson, so the scheduling did not involve a lot of day-to-day contact in the Tucson area. And at that same time, in that same era, concurrent with the authorization of CAP, we had a number of general investigation studies that were ongoing either in the San Pedro Basin or in the Santa Cruz Basin in an attempt to understand the water regime, to understand what was going on with the groundwater supplies, how groundwater overdraft was affecting subsidence, what impacts were going on in the riparian stream channels as a result of groundwater withdrawals.

So we had, oh, I think we had one or two water resource management studies. We had a Santa Cruz Basin study. We had a San Pedro-Santa Cruz Project study that looked at a couple of other dam sites, both on the San Pedro and on the Santa Cruz. We looked at Patagonia dam site on Sonoita Creek. We looked at Sassco Dam on the main stem of the Santa Cruz. We looked at a couple of dam sites, one at Redington and one at — I can't remember where the other one was. We examined several additional dam sites, both on the San Pedro and Santa Cruz, and we developed a better understanding of the hydrology and hydrologic regime of both river basins. None of those G.I. studies resulted in a proposed project

for authorization, but it certainly expanded our knowledge base of Pima County and what was going on in the water resources field down there.

So somewhere between, let's say, nominally 1972 and probably 1978 or 1980, the perceptions in Tucson of the Central Arizona Project kind of changed, or maybe they matured, or maybe a number of in-migrants came to the Tucson area. In the mid-seventies — and I can't cite a given date. I do know that on a couple of occasions I was the host for a representative from Washington, and we went down to the University of Arizona and had some public meetings down there and talked about water resource needs for Tucson and the Santa Cruz, and the tenor had changed. There was opposition. There was concern about cost. There was concern that the government would run out of money before the canal would get there. There was concerns being expressed that they didn't need that polluted Colorado River water; they were doing just fine on their pristine groundwater. There were expressions being made that they were being taxed, which they were. CAWCD was collecting an *ad valorem* tax in the three-county area, and there was concerns being expressed that Tucson and Pima County were being taxed for CAP and they'd never see any benefits, and they didn't want that old water anyhow.

It wasn't until the early eighties that the Director of the Department of Water Resources basically came forth and said, "You bought into this thing in the first place. You've got serious groundwater overdraft problems. We're going to enact a groundwater management code. It's going to apply to all of the CAP service areas, including Tucson. You can complain and moan and gripe all you want, but it's going to happen, and if you

State of Arizona applies pressure to Tucson to participate in CAP

don't buy into CAP, you're going to have some serious problems in the future with subsidence in the metropolitan area and damages that will result, disruptions that will result on transportation and sewers and power lines and everything else that might occur."

I guess maybe it wasn't in '80. It was probably '78 or '79. But it came about as a result of the water projects review and the conclusions that were reached there that Arizona needed to enact groundwater management regulations that would protect — if CAP was going to be a groundwater replacement system, it needed to be protected against future overdrafting and there needed to be controls in place and management in place by the state, because the state didn't manage any of its groundwater resources at the time. And I think Wes Steiner, as the Director of the Department of Water Resources, at the direction of Governor Babbitt, basically went to Tucson and told the people in Tucson that they were going to have to be involved in this effort to manage their groundwater and they shouldn't just look on the groundwater as something that they could continue to utilize *ad infinitum* because it was going to have some very dramatic adverse impacts to their infrastructure.

There were still people in Tucson — some people accepted that, and, in fact, the mayor of Tucson, at that time Mayor Murphy, Lou Murphy, he became a real supporter of the Central Arizona Project and a strong advocate. The Tucson Water, the water utility, Frank Brooks was the director of the Tucson Water at that time and worked for or at the direction of the mayor, and he also was a real strong advocate. As a matter of fact, Frank has retired now from Tucson Water, but he still serves on CAWCD's board. The two of them and Director Steiner were probably instrumental in

getting, I won't say total support, but substantial support from the Tucson area for importing Colorado River water to Pima County and the city of Tucson.

This all occurred before an allocation of water was made. This all occurred before definitive plans were made on how to actually deliver water. But the bottom line was, for probably seven or eight years there in the mid-seventies, from about '72 through '78 or '79, there was substantial opposition to participating in any way, shape, or form with the Central Arizona Project, and I think that the opposition developed primarily because there was no advocate for CAP carrying out that advocacy role in that era. It was not a high-visibility issue, because there was no construction going on, we're still a hundred miles away from getting to the Tucson area with regard to constructing CAP, there was no infusion of capital from CAP being recognized in the Tucson area, and the citizens in Tucson could see in their annual tax bill some money going to this nebulous organization in Phoenix called the CAWCD, and they didn't see themselves getting anything for it. So there was a strong opposition and a lack of advocacy that occurred in that mid-1970 time period.

By the time that the Arizona Groundwater Management Code was enacted — I think it was in 1980 that it was actually put in place. But there was a study commission that was appointed. There were representatives from Pima County involved in that study commission. I think it took two terms of the legislature to finally get it enacted. There were a number of representatives from Tucson involved, directly and indirectly, in enactment of that legislation.

In the mid-1970s there was substantial opposition to Tucson receiving CAP water

But it was about that time that there was a general sense that at least the majority of the folks who lived in Tucson were in support of taking some CAP water, and it was also concurrent with that that the initial recommendations for allocation of CAP water were made by the Department of Water Resources. It just so happened that Tucson Water, which represented basically the majority of the water suppliers in the Tucson area, received the largest single allocation of M&I water, 149,000 acre-feet, I think it was, of M&I water, which was greater than Phoenix, greater than any other municipality in the state. So they received, in terms of allocation and offer to contract, the single-largest allocation of Colorado River water.

And at the same time, we were now doing our advance planning in the Tucson area, so then the whole issue of how do we deliver water to Tucson, how do they intend to take and use their water supplies, what is the quantity of water? That question was being answered as we went through the water service contracting process. What were the impacts of delivering water to the east of the Tucson Mountains, or the west of the Tucson mountains? How far south did the aqueduct have to extend? Who were the other contractors that needed to be served? How much conveyance capacity did we have to provide for the other contractors?

There were a number of small municipal water companies that existed at that time. As the city expanded, Tucson Water would tend to buy the small domestic water companies up and convert their systems and put them on Tucson water, city of Tucson water. So the state, in its recommendations, allocated a lot of water to some of these smaller domestic water suppliers, a couple thousand acre-feet for one, a couple hundred acre-feet for another. I think we had

Tucson received the largest single allocation of Colorado River water

about twelve of those small water companies probably in aggregate, maybe 20,000 acre-feet, but probably no one with more than 2,000 being allocated.

Many of the water companies, as they were bought out by the city of Tucson, had mixed feelings or misgivings about the acquisition. Many felt like they'd been pressured into selling out at too low a price. I think that was the general complaint, that the big city folks came in there and maybe they served 640 acres or 1,280 acres or certain development had occurred, some level of development had occurred, and they'd gone out and got a certificate from the corporation commission to serve water to that small community, and now that community had been annexed into the city of Tucson and Tucson Water had come in and pressured the water company to sell out its assets at less than market value, or less than they thought they deserved, certainly. And so there was a lot of this Big Brother syndrome, I think, going on, and the smaller water companies tended to become part of the opposition.

When Tucson announced its plans to go to state-of-the-art water treatment, using ozonization and other processes that were probably less than typical to what was being used, for example, in Phoenix, where we still had chlorine in the system. I think there was a lot of concern about the validity of both the expense and the method of treatment. There were several individuals, very vocal individuals, who felt like natural treatment processes, like groundwater recharge and recovery, were probably better, and they made their views known, both in the press and through public forum. The city, the elected officials, generally continued to support CAP, but there was always a undercurrent of controversy and opposition to CAP in Tucson. Still is today.

When the city proceeded to make its first delivery of CAP water in about '92, because of the corrosiveness of the Colorado River supply and the lack of forethought, I guess, on the part of the city of Tucson with regard to its water mains, its old sixty and seventy-year-old water mains, there was a lot of scouring that took place in the delivery. The carbonate encrustation was dissolved that was around the pipes. The pipes broke. There was a lot of red water that — not that the water was red when it left the water treatment plant. It was good-quality water when it left the water treatment plant. As it flowed through the old water mains, the ductile iron pipe and the calcium carbonate encrustation within the pipe all kind of melted, evaporated. It was picked up by the water, and then when the water was delivered, it was red or brown or discolored or had flecks of rust or calcium carbonate in the water that was being delivered, and then it was corrosive enough to cause pipes to break within people's houses, older houses. That could have all been solved relatively easy by additives to the water before it went into the mains, but Tucson Water didn't realize that. It was a substantial change in water chemistry and in turn resulted in another public outcry of opposition to the CAP.

Nonetheless, I guess I'd have to say that the mayor and the city council and the elected officials and the operating utility, the Tucson Water operating utility, are still major supporters of CAP, still envision, anticipate a need for all the water that they've contracted for in the future. They anticipate a need to get off the pumps. They have observed some subsidence down on the central well field. The depths that they're pumping in the central well field are now becoming prohibitive. Some of the well fields that they've established to the south are now

*Problems caused by
Tucson's first delivery of
Colorado River water
from CAP*

contaminated with TCE. They're having to strip those wells under a court order, and the product water from that stripping process can't be used for potable use. It has to go back in the groundwater. So their production capability has been reduced substantially.

They've reached out to the northwest and purchased former agricultural land in Brawley Wash, which is the next major drainage to the west of the Santa Cruz Basin. They've retired farmland. So they do have some capability to offset the loss of wells either in the central well field or in the south — production, I should say, in the central well field or to the south in the Sahuarita area. They can utilize retired farmland in the Brawley Wash area and Avra Valley, but they're going to have to put wells in. They don't have the production capability. They've got the water that's there, but they don't have the production capabilities, so that would cost additional money. CAP is right there at their doorstep. Of course, the elected officials would rather ensure that CAP could meet the standards and effectuate delivery through CAP as opposed to making another capital investment for water production facilities out in Avra Valley.

A year ago now, almost a year ago, I guess, there was a locally sponsored proposition that was on the ballot that would have precluded Tucson from taking direct delivery of CAP water for up to five years, would have placed certain requirements on qualities that could be delivered through Tucson Water. That passed, that initiative passed, and as a result, Tucson's in kind of a quandary on how they're going to make use of their CAP entitlements. They support it. At least the elected officials all support using CAP water. But they're faced with a initiative that puts certain

Tucson has decided to deliver Colorado River water from CAP through groundwater

restrictions on directly using CAP water. So they have authorized a pilot program of recharge and recovery, where they'll take the CAP water, put it in the ground to the northwest of the city of Tucson, pick it up some distance downstream, delivery it through a parallel pipe system to the water treatment plant, run it through the water treatment plant, put it into the CAP Snyder Hill Pumping Plant, and then deliver it through a CAP facility to their storage reservoir in the Tucson mountains, and then from the storage reservoir, the water will go out into the water main system. But the bottom line is, it is no longer CAP water. It is now groundwater, because it's gone through this transition from Colorado River water to groundwater and then been pumped back out. The immediate plan would seem to indicate at least it still has the character of Colorado River water. It just is, by being in the ground for a short period of time, it now meets the definition of groundwater, although it's kind of moot point on whether it's — in the short run it will be groundwater, but in the long run, as the mound of recharged Colorado River water becomes greater and greater as they recharge Colorado River water, most of that will be intercepted by the production wells, and it will tend to take on the physical and chemical characteristics of Colorado River water over time, certainly. Initially, since the mound from the recharge sites will not impinge on the production wells, they will be pumping groundwater. But eventually the mound will grow and grow and then eventually intercept the production wells and basically become Colorado River water. All that they have done, it seems to me, is increase their costs, because now they have an added cost of the construction and operation and maintenance of this recharge and recovery system, as well as the cost of energy to pump that water and then to

convey it in a parallel system that parallels our canal down to the Snyder Hill Pumping Plant so they can pump it into their mains.

Storey: So there isn't an expectation that this would filter the —

Morton: I'm sure it will filter out some, but if you have salinity levels of 600 or 700 milligrams per liter, it's still going to have that much salinity in it. The natural filtration processes will take out the same things that your conventional water treatment plant will remove — the algae, the biota if you will, the various contaminants. But salinity should be the same, it seems to me. There's no mixing effect. There's no dissolving effect.

END SIDE 2, TAPE 2. SEPTEMBER 3, 1996.

BEGINNING OF SIDE 1, TAPE 3. SEPTEMBER 3, 1996.

Storey: This is tape three of an interview by Brit Story with Larry Morton on September 3, 1996.
There's no dilution.

Morton: No dilution, no diluting effect that would improve the quality, and there's no evaporation that would concentrate the salt. I mean, it's going to look a lot like Colorado River water, it seems to me. You may not have to use purification. You may not have to put ozone or chlorine, or as much chlorine, in it to disinfect the water that goes through this process, this natural filtration process. But the bottom line is, it may not meet the criteria that the local voting population has decreed that it should.

Storey: I think I was confused a little earlier. The Snyder Hill Pumping Plant is on the other side of the treatment plant?

Morton: It's on the downstream side of the treatment plant.

Storey: Now, why are we involved once we get past the treatment plant? That's the part I guess I didn't understand.

Why Reclamation pumps water beyond the city of Tucson's water treatment plant

Morton: That came about through the planning process. Basically, we're looking at a couple of primary requirements for the Tucson Aqueduct — where is the water to be delivered and how much is to be delivered and how do you intend to make use of it? You can make use of it like a steady state. I'm going to take X second feet twenty-four hours a day, or I'm going to have storage within my system. If I took it as a steady state, I would have storage in my system, because the demands on your system are much higher in the day and much lower at night. So depending on whether you've got storage in your system or not will depend on the flow rate that you take receipt of the water at.

Some of the smaller entities will actually take it on demand, and so the flow rate will vary substantially from day to night, or from summer to winter. If you have relatively large amounts of storage or you base load your CAP and then peak either daily and/or seasonally with groundwater, then you can design your treatment plant and you conveyance facility differently. So those are the kinds of technical questions that we were trying to resolve in 1982, '83, '84, and Tucson at the same time was designing their treatment plant system and the locations. We were looking at the location for the canal; they were looking for the location of their treatment plant and their trunk line delivery system

They concluded that they wanted to effectuate delivery at elevation 2,800 feet, because Tucson, the city, has expanded out into the foothills and so they have a number of pump

zones. I think they must have about eight different pump zones, and several of them are above elevation 2,800 feet. But based on the economics of siting, do you take these mains all the way up to the top of the mountain and then have a big pipe at the top of the mountain and it gets progressively smaller as you go down, or do you split the range and you only come about halfway up for your main delivery system and then you relift all the rest of the water supply to the higher elevation?

Anyhow, they did a service area-wide analysis and kind of concluded that their economic break-even point was about elevation 2,800 feet. That would mean that for anybody above that elevation, they would have to have additional pump lifts, but they wouldn't have to extend their mains, their large diameter mains, higher in the service area, to higher elevations in the service area. So there was a cost trade-off, and certainly they could be wrong. It may result that a lot more people will live at higher elevations eventually, and they will have made the mistake of sizing their system for the wrong elevation, [the wrong] centroid elevation.

Irrespective, Tucson basically said, "We want delivery made at elevation 2,800 feet, and there's a lot of reasons why," and they explained that both to Reclamation and to the CAWCD. I think there was probably a little bit of politics that went on there, but CAWCD came back to us and said, "We support the turnout at elevation 2,800 feet." And, in fact, the terminus for the Tucson Aqueduct at the southernmost point, at the south boundary of the San Xavier Indian Reservation, was elevation 2,800 feet. It's just there was a couple more pumping plants between the location of the terminus and the location that they wanted

to actually deliver the water to their water treatment plant.

So there was a problem in that we were going to lift the water at least one more time to convey it on south to the San Xavier Indian Reservation, but the siting of the water treatment plant I think was about elevation 2,500 feet. Well, they didn't want to take the water treatment plant all the way up to the top of the hill where they were going to take delivery of the water. A common point would have said, "Well, take your water treatment plant to the south boundary of the San Xavier Indian Reservation at the Santa Cruz River and then bring the water back at that elevation to serve the city of Tucson." Well, that would have required the city of Tucson to put in a lot of additional water mains. Basically, we would have had CAP Colorado River water going south in a canal and then it coming back north in pipelines to the city of Tucson as treated water.

So the CAWCD came back to us and said, "We will have no objection to delivering water at 2,800 feet anywhere along here. You're going to go all the way, you're going to go another twenty miles south past the city to deliver it to the south boundary of the San Xavier Indian Reservation and you're going to deliver it at 2,800 feet. We're okay with the city of Tucson taking delivery intermediate to the terminus at 2,800 feet."

Well, that meant we had to put an intermediate pumping plant in there for Tucson's turnout and it's part of the overall plan, and since Tucson was the largest-single M&I contractor we had and since the repayment entity was willing to pick up the repayment obligation, that became part of our plan and part of the design.

So the Tucson Aqueduct is headed south. It goes through four pumping plants as it's going to the south, and then there's a turnout, and it turns

out the water to the Tucson water treatment plant, the — what do they call it now? It's got Udall in it, something Udall Water Treatment Plant. Anyhow, it turns out water to the city of Tucson facility, and then if it was in operation, it would treat the water, purify it, and then it would introduce the water into the forebay of the Snyder Hill Pumping Plant and we would pump the water up another 250 feet to what they call the — it's a big tank that the city of Tucson built up on top of the mountain. I can't even think of the name of it now. But we pump the water into their regulating reservoir, which is a concrete-lined reservoir on top of the mountain, on top of the Tucson mountains, and then the water is introduced into their distribution mains from that location, and it flows to the east side of the Tucson mountains.

Storey: As this process was evolving and Tucson was becoming increasingly interested, or forced into it, or however you want to look at this, that must have meant that the canals and the pumping plants between Phoenix and Tucson had to be resized, is that correct?

Morton: Well, there are — let me think here. There are nine pumping plants south of the Gila River. There's one pumping plant in Maricopa County that takes water south. The Salt-Gila Pumping Plant takes water south of the Salt River and delivers it to Pinal County, and Pinal County was originally envisioned, and is still envisioned, to be the centroid of water service.

In other words, the majority of the water at any given time, either because the cities are not using it and the only logical customer is the large farm interests in Pinal County, or the fact that the single-largest Indian contractor, Gila River Indian Community, is also located in Pinal County, that

combination of factors pretty much dictates that we can deliver substantial supplies of water to Pinal County. So while we're diverting Colorado River water at a capacity of 3,000 cubic feet per second, the Salt-Gila Aqueduct, which starts roughly halfway through the system, still has a design capacity of 2,500 cubic feet per second. So volumetrically, at least flow rate-wise, the rate of flows haven't decreased proportional to the service area.

By the time we get to the terminus of the Salt-Gila Aqueduct and the beginning of the Tucson Aqueduct, we have about a 1,000 cubic foot per second design capability. And then the question was, do we want to — the problem is, we start the downstream-most end and back it up, and we were limited by — we run out of water before we run out of demand in any given iteration. The peak-level demands probably could be as much as 5,000 cubic feet per second, but it's not economic to build the system to meet the peak demand. There has to be some leveling of demand on CAP.

And so the entities that have groundwater, and CAP will only be a portion of their supply, we cannot meet the total demand for water at a given point in time. The first of July, the total demand could be as much as 5,000 cubic feet per second. We've only got three. So 2,000 of that 5,000 has to be met by groundwater. They're going to do that anyhow. CAP would only provide two, two and a half acre-feet per acre, and they were going to use four, four and half, or five.

So the bottom line is, by limiting the amount of flow rate in CAP, they can make that up with the groundwater pumps, and they were going to have to do that anyhow over the entire year. Volumetrically they had to do that. So the question is, how big do you make the system, and I think in terms of turnout capacity through the

length of the Salt-Gila Aqueduct, we can pump up to 2,500 cubic feet per second, but if you opened every turnout to their maximum capacity, it would drain the canal before the water got down to the end, because there's something like 4,500 cubic feet per second worth of turnouts that can go out of it.

So we have to restrict at any one time, and a lot of people, a lot of entities, a lot of irrigation districts oversize their turnouts in anticipation that at any given moment in time they could increase the rate at which they took their CAP water and offset some of their costs. So they could do some power management on how they operated their pumps, save themselves some money on electrical energy, and in turn volumetrically meet their contract entitlements, so long as it didn't adversely affect their neighbor at the next turnout. So if they could reciprocate in time, everybody came out with a little bit of financial benefit because they were able to do some power management, and CAP stayed full all the time. In other words, there would always be 2,500 cubic feet per second flowing down the canal, and nobody in total was turning out more than that, but an individual, two individuals could interchange their flow rates so that they could each gain some minor advantage in power management. So the bottom line was, when we needed to design the Tucson Aqueduct, we had to take some things at face value because we had to assume that the contractors that had entered into contracts were really *bona fide* in their need for the water and their delivery schedules were going to materialize.

As it works out, probably we oversized the first three pumping plants because of what has happened with the Cortaro-Marana Irrigation District, who had a water allocation and chose not to contract for it, or the Central Arizona Irrigation

and Drainage District, which had an allocation, contracted for it, has gone bankrupt, and has now restructured under bankruptcy law, and will continue to take some water, but nearly as much as they'd originally anticipated. So the first three pumping plants, I would have to say, are probably oversized to meet what we think the demand is going to be in Pima County today.

Fortunately, most of the other users south of the Pima County line, south of the Cortaro-Marana Irrigation District, in comparison to the city of Tucson, are relatively small. There's probably the second-largest user, after the city of Tucson, is the Tohono O'odham Nation. The city of Tucson's got an entitlement to about 150,000 acre-feet a year. The Nation has 66,000, and then the next largest one probably has 4,000 or 5,000 acre-feet. So all of the other users in the Tucson area, in relationship to the Nation and city, are relatively small and inconsequential in the sizing of the aqueduct. So if we can nail down how Tucson intends to use their water and how the Tohono O'odham Nation intends to use their water, that's about all we really need to know to effectively size the canal.

Fortunately, because Tucson, through development of its treatment plant, pretty much locked itself in to how it was going to take and use its CAP entitlements; and the Nation, who indicated that they were going to use their entitlements for irrigation, that pretty much sized the system to the south of the Pinal County line. I mean, there weren't a lot of unanswered questions that would have a bearing on how big the canal should be to the south. So I think those six plants to the south are sized probably and kind of fit where we think things are going to go in the future. But to the north, there's probably

150 cubic feet per second too much capacity in those pumping plants.

Storey: Okay. Well, I think we've sort of arrived at a natural stopping point, and it's almost two o'clock, which was the end of our appointment time. So let me ask you if you are willing for researchers to use the information contained in these tapes and the resulting transcripts.

Morton: Sure.

Storey: Good. Thank you very much.

END OF SIDE 1, TAPE 3. SEPTEMBER 3, 1996.

BEGIN SIDE 1, TAPE 1. SEPTEMBER 5, 1996

Storey: This is Brit Allan Storey, Senior Historian of the Bureau of Reclamation, interviewing Larry Morton, Assistant Area Manager of the Phoenix Area Office, at his offices in Phoenix, Arizona, on September 5, 1996, at about eleven o'clock in the morning. This is tape one.

As we've been going through these interviews over the past weeks, we've talked about a lot of different topics about Native Americans, and we covered a lot of it, I think, pretty well. One thing I'm wondering is, have you seen a change in the relationship between Reclamation and the Indian communities over the years, and if you have, what do you think that's attributable to?

Morton: I've seen a change in relationships with some of the communities. I can't say that our relationships have changed dramatically with Gila River Indian Community. At the time that — let me say this. In the mid-seventies, when I worked on developing data for the water allocation for all of the Indian communities, the communities and

*Reclamation relations
with Native American and
how they've changed*

their attorneys and their consultants were very reluctant to divulge the data that was necessary for us to derive an allocation based on the directions we'd received from the commissioner, and I think a lot of that had to do with pending claims for their water rights settlements.

Many of the communities at that time were engaged in developing their data to either go to litigation or to be used in negotiation for purposes of deriving a water rights settlement, and the consultants and the attorneys were not willing to share that information with Reclamation, nor agree with Reclamation on any of the independent data that we might have assembled, for fear that it might jeopardize their claim or adversely affect their claim or become a basis for a counterclaim by the state of Arizona or the municipalities or other water users within the state of Arizona.

Many of the tribes now, through legislation, have obtained some form of a water rights settlement. The Ak-chin Indian Community, the Salt River Pima-Maricopa Community, Fort McDowell community, the Tohono O'odham Nation, the San Carlos Indian Tribe, San Carlos Apache Tribe, they all have legislated settlements for their water rights, and I think that there has been a very dramatic change in our relationship, in Reclamation's relationship, with those tribes and communities.

But Gila River is still in a situation of not yet having a water rights settlement. They're probably — well, they definitely are the largest claimant. They have, I think it's roughly 325,000 acres on the reservation. Much of it is arable, if you use the practicably irrigable acreage measure that came out of *Arizona v. California* for Indian water rights. Certainly they have one of the largest claims, possibly outside of the Navaho

The Gila River Indian Community does not have a water rights settlement

Nation, that could exist in Arizona, just by virtue of their location and the arability of the land that forms the reservation. So I think that our relationship with Gila River is still somewhat contentious. I don't see us working on the same wavelength with Gila River as we do with many of the other tribes, all of those that have water rights settlements now.

So I think that there has been a change, and the only thing I would attribute that change to is the fact that there has been some legislation put in place to guarantee water rights for the various tribes.

Storey: One of the things we've talked about is how, as the project has evolved and costs have increased, water has been transferred from irrigation to M&I uses. What kinds of costs are involved, and what kinds of repayment contract alterations are necessary and those sorts of things because of the differentials there?

Morton: Well, it's not only within CAP. I mean, it's within other Reclamation programs. As historically irrigated lands become urbanized, there's a transferal. Let me give you two perspectives on that.

One would be the Salt River Project, an old Reclamation project here in the Phoenix metropolitan area. The Salt River Project originally consisted of 238,000 acres of irrigated land. There's probably 70,000 acres today still remaining in field accounts, in irrigated farmland. The rest, the other 160,000 acres or so, has been urbanized, or is in the throes of being urbanized. A lot of the development that took place in the Phoenix area is kind of a leapfrog process, and so there's some parcels that may not have houses on

How water transfers from irrigation to M&I uses

them yet, but because of their location, being surrounded by houses, it's not conducive to really engage in commercial agriculture. So those parcels, for all practical purposes, are dormant and don't enter into the equation of currently irrigated land.

What has happened on the Salt River Project is that the cities that have annexed these newly developed lands have, in turn, assumed the responsibility for the land's water rights; and the cities, in turn, pay the assessment to SRP for the water that SRP would deliver; and, in turn, the water delivery is made to the city water treatment plant; and then the water, in turn, is conveyed as potable water to the member lands within the Project.

So I live in Tempe and I've got a little more than a quarter of an acre, pretty big lot. I mean, most lots are like a fifth of an acre. I've got almost a third of an acre, because I happen to be in a cul-de-sac. Typically with SRP, their assessment in the last couple of years has been about \$33.00, \$32.75 I think it was last year, \$32.75 per acre, and then that entitles that landowner to about anywhere from two and a half to three and a half acre-feet per acre, depending on the conditions in the watershed at the beginning of the year. The Salt River Project Board will make an apportionment, and if runoff exceeds expectations, the apportionment may go up to as much three and a half acre-feet per acre. If it's a dry year and the board determines that they need to decrease the apportionment, it might be as little as two and a half acre-feet per year. But nominally, you would get about three acre-feet per acre per year for your \$33.00. That would say that you're buying the water, basically, for \$11.00 an acre-foot. And if I had a full third of an acre, that would mean I would get one acre-foot for my third

of an acre, and that one acre-foot would cost me \$11.00, on the basis of a third of an acre times the \$33.00 charge.

Storey: Are you saying you're getting irrigation water?

Morton: No, I'm not getting irrigation water. I'm just drawing a comparison here. If I was a farmer and that was my farmland, I would get delivered to the high point in the quarter section an acre-foot for about \$11.00. Salt River would deliver that to the high point in my quarter section for about \$11.00.

The city of Tempe has taken on my responsibility to pay Salt River the \$11.00 I would owe. The city of Tempe charges me about \$35.00 a month. And I don't think I use a whole acre-foot. An acre-foot presumably is — the rule of thumb would be an acre-foot is sufficient to provide a water supply for a family of five, a household of five people, for a year. I probably use a little bit less than an acre-foot. But like I said, I'm probably paying 40 bucks a month, or \$480 a year, and I don't think I get quite an acre-foot, but let's just say I did.

So the comparison would be, SRP gets \$11.00 an acre-foot. That's what I would be paying if I was in commercial agriculture. By going to urbanization and having the city treat the water, run it through their transmission mains and deliver it to my lot, it costs me about, nominally, \$480 a year. So that's the difference between what the raw cost of water would be and what the delivered cost of water would be, and that's all in the costs associated with the treatment and transmission that the city assumes.

Generally, it's transparent to the home buyer. It becomes an incumbrance on the deed when you buy the house, and that's the relationship that's been worked out. The city

guarantees to represent all the homeowners, all the landowners in the city, in terms of their water rights, and so basically you've given power of attorney, if you will, to the city to operate on your behalf with regard to the administration of your water rights for that lot that you may own in any of the given cities. And that seems to be a reasonably consistent practice with all of the cities within the Salt River Project, I think.

On the Central Arizona Project, on the other hand, the customers of the Central Arizona Project are the cities, are not individual landowners. There's no water right, if you will, that is associated with the land; whereas on the Salt River Project, the Salt River Project is merely acting as an agent for the water rights holders, which are the landowners, and, in turn, the landowners are transferring, through powers of attorney, their rights to administer to the various cities that they may be located in.

In the case of the Central Arizona Project, the cities and/or the irrigation districts have a contract entitlement for the delivery of water to various locations within their respective service areas, and there is generally a market for those contracts. It tends to operate among like categories of use.

In other words, the case might be that Nogales, for example, may have contract, does have a contract, for the delivery of, I think it's about 4,500 acre-feet of water. It's going to be pretty costly for Nogales to come roughly sixty miles north to the terminus of the Tucson Aqueduct, construct a pipeline, a small pumping plant, pump that water to Nogales. There are lesser cost alternatives that are probably available to Nogales, including retiring farmland in the area or constructing wells, groundwater wells, participating in a groundwater replenishment

district, and buying water from the groundwater replenishment district and then pumping it out. So there's a number of ways that Nogales can avail themselves of additional water supplies as they grow over the years.

So they don't need their contract, or they've determined that they want to relinquish their contract or work out some other financial arrangement to assist them in obtaining future water supplies. So they've negotiated with an intermediary representing the city of Scottsdale, and the city of Scottsdale is prepared to pay roughly, I think it's around \$1,000 an acre-foot for Nogales' contract, with the understanding that the money resulting from that, we won't call it a sale, but an assignment of their CAP contract, will be used to obtain other water supplies for the future growth of Nogales, and that assignment, in turn, would have to be approved by Reclamation and by CAWCD.

We're in the throes of doing that right now. The agreement has pretty much, I think, been concluded. The terms and conditions have been agreed to, and they're basically waiting for Reclamation to complete its NEPA [National Environmental Policy Act] processing of their proposed contract assignment, and Nogales, in turn, would receive roughly \$4.5 million to be used for future water needs that they might have.

I think one of the things Nogales has recently done was to purchase a ranch and ranch headquarters, that's just a few miles away from the town, and the ranch has some very early water rights, high-priority water rights, and, in turn, they intend to convert those water rights into part of their future water supply needs. I think they envisioned, with new wells and transmission mains and small pumping plant, and the purchase price for the land, they probably would be

spending about 2 million of that 4.5 million for their immediate short-term future needs, and then there'd still be something left over from the payment that the city of Scottsdale would make for future needs after the turn of the century. So that's kind of where Nogales is, and I would have to say they're fairly typical.

We had the Hohokam Irrigation District and the Harquahala Irrigation District. Both marketed their contract entitlements. Harquahala was to the United States so that we could provide for the Fort McDowell Water Rights Settlement Act, provide water to the Fort McDowell community. Hohokam marketed its contract entitlement to the six valley cities that were part of Plan 6, and that made up the replacement water for Cliff Dam, when Cliff Dam was deleted from Plan 6. The cities felt like they were entitled to what they had bargained for in the Plan 6 funding agreement, namely the water yield from Cliff Dam, and we were able to effectuate that through purchase of Hohokam's entitlement.

And then there have been a number of assignments and transfers within CAP. Some of them are just direct transfers, where a water company that has a contract is annexed by a city and the city takes over the delivery of water to the customers within that private water company. And so the contract entitlement for that private water company is just assigned to the city as a direct exchange, no monetary exchange, but a direct exchange. And then their second category would be like the Nogales and Scottsdale arrangement, where a contractor who has yet to make use of his entitlement will market that contract, assign that contract, and, in turn, receive some proceeds.

*Irrigation districts market
their contract
entitlements to CAP water*

And then there's another type that's just now getting going that would involve an entity that — McMicken Irrigation District, for example, has a split allocation. They have an allocation for domestic purposes and an allocation for irrigation purposes. There has yet to be little, if any, development, for example, of urbanized development in the irrigation district, but they anticipate very shortly that the town of Surprise, for example, will annex a piece of the McMicken Irrigation District, and I think that they're going to be a combined situation, where part of the service area will become within the town limits of Surprise, but Surprise will also agree to furnish domestic water to some more of the McMicken. And so McMicken will probably relinquish its entire contract to the town of Surprise.

So there's about, we're probably up to about ten or eleven of these contract assignments, and we've probably had six or seven annexations and the two big irrigation districts. We've had about eighteen or twenty total contract assignments, and it's not a real involved process. We assess the environmental impacts of making the transfer. Some of these transfers, in the case of just flowing from one entity to the other, really were part of the original plan. It just is the entity delivers the water to somebody different, and so there's no net environmental impact.

In the case of Nogales's contract assignment to Scottsdale, there may be a growth inducement type of impact resulting from the fact that Scottsdale has an increased water supply. Although Scottsdale had anticipated that growth and while they weren't going to be using CAP water, they had other alternative water supplies, so the net impact may be negligible in that they forego development of the third water supply, for example, Planet Ranch surface water rights or

groundwater being pumped from some remote basin. But nonetheless, we do go through an environmental assessment process before we approve those kinds of water transfers.

Storey: My understanding, which may be wrong, is that the repayment responsibility for irrigation water is different than the repayment responsibility for M&I water. So I guess this is sort of a two-part question. What happens to the financing when these transfers, like McMicken to Surprise, take place, or Hohokam to the six valley cities take place, first of all. And the second part of the question has to do with something that has completely fled my mind. [Laughter]

Morton: Let me answer the first question and you think about what the second question was. Each transaction kind of becomes unique. If it's a transaction of M&I to M&I, which is the bulk of the transactions that we've seen — and I'm going to say we've got roughly twenty today, and probably eighteen of those twenty were M&I to M&I.

In the case of a Nogales, for example, which is outside of the three-county service area, the three-county taxing area of the Central Arizona Water Conservation District, Nogales has a responsibility to make up its deficiency in that tax base, so they pay a premium as part of their capital component that flows to CAWCD. They pay a premium because CAWCD cannot tax at the *ad valorem* tax rate within Nogales as they can in other cities that are contractors to CAWCD. So Nogales pays a premium to make up that differential.

That differential will now not be available to CAWCD because Nogales will no longer be a contractor. So one of the concessions that

CAWCD gains from the city of Scottsdale to approve that reassignment, since Scottsdale's only going to pay on their assessed evaluation and the assessed evaluation would be the same whether they had just their base contract or they obtained additional contracts from ten other urban municipalities — or rural municipalities, as in the case of Nogales — there would be no additional *ad valorem* taxes that could be generated in the city of Scottsdale to offset the loss of that premium payment that they're getting, that CAWCD's getting from these rural cities that are outside of the service area. So CAWCD insists on being kept whole, and so Scottsdale has to commit to picking up that incremental cost adjustment to get CAWCD's approval for the contract assignment.

CAWCD, on the other hand, in their water service charge collects a capital component from the cities that is sufficient to pay 100 percent of the repayment obligation associated with municipal and industrial water, so the municipal and industrial aspect is fully paid for in the rate structure by the cities and private water companies. The *ad valorem* tax is used to pick up the irrigation — we don't like the word subsidy, but that's the only word that can come to mind right now — pick up the interest differential component that the irrigators don't pay, as well as to pay for other capital obligations that CAWCD might have.

So the bottom line is that the irrigators only pay according to their ability, and that basically is \$2.00 an acre-foot, out of, I think we have a repayment obligation of about \$800 million for irrigation, and I think that the last cost allocation, the irrigators were paying about \$60 million of that \$800 million. So the remainder, the \$740 million, is being paid for by power, by

profits from the sale of commercial power and/or from *ad valorem* taxes. So that's basically the difference. The city's rate structure is based on, the municipal and industrial rate structure is based on full retirement of its capital.

END OF SIDE 1, TAPE 1. SEPTEMBER 5, 1996.

BEGINNING OF SIDE 2, TAPE 1. SEPTEMBER 5, 1996.

Storey: Full repayment over fifty years.

Morton: Right. And the irrigation obligation is repaid according to its ability, which is 5 percent, something like that.

Storey: The cost attributable to irrigation.

Morton: Right, of the cost allocated to irrigation. Sixty million out of 800, that's a little more than 5 percent, but less than 10. And then the rest, irrigation assistance is picked up by power and/or *ad valorem* taxes.

Storey: So I can see where it would be in the government's interest to have water flow from irrigation to municipal usage.

Morton: It's only to the advantage in that M&I pays interest on the unpaid balance and irrigation does not. Irrigation is interest free. The total investment allocated to both components will be fully repaid to the Treasury. So we get the capital component back. It just is, in recovering the capital component from M&I, the government will get interest on the unpaid balance, which is 3.342 percent per year, so we do get some interest.

Storey: The second part of the question was, who has to approve the transfers, state, BR [Bureau of

*Who must approve CAP
water transfers*

Reclamation], Interior, CAWCD, a combination?
How does it work?

Morton: The signatories to the original subcontract are the original contractor of the entity (Nogales, in the case of what we were talking about earlier); CAWCD; and Reclamation. We also get the views of the [Arizona] Department of Water Resources, which made the initial allocation, and in the initial allocation, the Department of Water Resources basically recommended that Nogales receive 4,500 acre-feet for its future anticipated needs. So we consult with the Department of Water Resources to make sure that this transferral from Nogales, in the example we've been using, to Scottsdale is not adverse to or contrary to state policy on allocation of CAP resources, because the Secretary has the responsibility to consult with the state on the delivery and use of Colorado River water. So we do consult, we do get a letter of concurrence from the Department of Water Resources, before we'll execute the approval of the contract exchange.

So to answer your question, there's four signatories on the new contract. The receiving entity, the entity that's giving up its original entitlement, CAWCD, and Reclamation are the four parties to the contract.

Storey: But also done with state concurrence.

Morton: But done with state concurrence. I would expect that if some kind of transferral was proposed that was contrary to state policy on allocation of resources, the Federal Government would not execute the agreement. But at this time, none of the transfers that have taken place have been objected to by the state.

Storey: CAWCD, I believe, beginning in '82, started taking over the O&M functions for Central Arizona Project. What kinds of issues came up? What kinds of agreements had to be worked out, and what were the issues that were involved in those as you went along?

Issues involved in transfer of O&M to CAWCD

Morton: A lot of issues. Let me go back. Prior to 1982, in the late seventies, the concept was that, as major components of the delivery system were completed — for example, the Granite Reef Aqueduct — and Reclamation had the capability to make interim water deliveries, we would proceed to do that, and that we would enter into temporary or short-term water service contracts with the entities that we were delivering water to and that those contracts would be predicated on comparable cost to water for the service area we were delivering the water to.

For example, the first major water user in relationship to the Colorado River, the first user that we could initially deliver water to, would have been the Harquahala Valley Irrigation District. So it was anticipated that we would market water, sell water, to Harquahala on an interim basis for their production cost of groundwater, which was roughly \$40 an acre-foot, I think; and that as we were constructing the remainder of the system, Reclamation would employ an O&M, a maintenance work force to operate the canal, for example, from the Colorado River to the Harquahala Valley Irrigation District as our first delivery point. That's about 110 miles, 120 miles of canal, and four major pumping plants, so we would have had to employ an additional staff of maintenance mechanics, ditch riders, operators, repair people who could repair gates and checks and turnouts and so on.

That was about the time that it was decided early in the [Ronald] Reagan Administration, the first Reagan Administration, that the numbers of people working in the government shouldn't be so large. In fact, we were assigned limitations on FTEs. And so the original concept wasn't going to work. We just didn't have the FTE assigned to the Bureau of Reclamation or to the Phoenix — Arizona Projects Office to have a full construction work force and a partial O&M work force. It just couldn't work.

We had several people on board on our staff working for the construction engineer who had an O&M background. They had come from other Reclamation projects and had some experience in operating and maintaining either pumping plants or water conveyance facilities. These individuals had been hired primarily because of their knowledge in developing operating procedures. Part of our anticipation was that part of the job of doing construction was, you turned over a fully operational system to whoever was going to continue to operate it, and part of what you turned over not only was the physical concrete and steel and so forth, but the method to operate, the software if you will, which valves do you turn. So these people had been hired in anticipation that they would write SOPs, standard operating procedures, and would be prepared to test out the final constructed product to make sure that, in fact, it was operational, and then it would be turned over to CAWCD or another party, because at that time it had yet to be defined whether CAWCD was going to be the operating entity. Their authority, under state law at that time, was only to act as the repayment entity, and their organic act, their authorizing act, in the state legislature did not define them; and in fact, all of

the contracts up until that point talked in general terms about turning care operation and maintenance over to an operating entity. None of the contracts would state it was CAWCD.

So coming up in the early eighties, '81, '82, '83, it became obvious that CAWCD was to be the operating entity, and it was obvious also that Reclamation's work forces, really we didn't have the ability to hire a work force to operate and maintain the canal. So it was at that time that we entered into a service contract, initially, with CAWCD. I think it might have been a year later, because they had a relatively small work force until we moved out here, and we moved out here in '84. So I'm thinking that we transferred all of our people in like '83.

So we had about twenty or twenty-five people who were dedicated generally to care operation and maintenance of completed works, whether those were pumping plants or the Reach 11 dikes, or reaches of the Granite Reef Aqueduct, and those people were given the opportunity to go to work for CAWCD and just basically change the color of their check. The District took our job categories, took our position descriptions, took our pay scales, and basically just adopted them across the board, and went from a ten-person organization to a forty-person organization almost overnight, purely on the basis that we were going to pay CAWCD to operate the canal on an interim basis until the water delivery system was sufficiently complete to turn the entire thing over to them. They would operate as our contractor during that period of time, and appropriated funds would be provided to them to make up the difference in what they could collect for water deliveries versus what the actual cost of achieving those water deliveries would be.

*Transfer of staff to
CAWCD*

So what we have done, at least from about 1982 until 1993, 1983 to '93, anyhow in that ten- or eleven-year time period, the differential in cost between what was collected in short-term water charges and what the actual cost of this operation and maintenance activity during construction, the difference in that was capitalized, and that became a capital cost of CAP and was paid for with appropriations, with Federal appropriations. But it was considered an appropriate method to put the District into an operating mode. It allowed them to grow as more and more, longer lengths of the canal became operational. It allowed the District to employ more and more staff. It allowed the District to become familiar with the operation of a canal, starting off with probably about 110 miles of canal, and a year later 180 miles of canal, bringing the water into Phoenix; and another sixty-mile stretch bringing water into Pinal County; and finally the last eighty miles bringing water to Tucson; and they could grow from operating five pumping plants to now fifteen, I think. And more recently, in the 1994 time period, they gained experience in operating the pump generating station at New Waddell and operating and maintaining New Waddell Dam itself.

So they've had the opportunity to grow. The whole system was not dumped on them [all] at once. Reclamation had the added advantage of not staffing dual organizations, an operating organization and a construction organization. We only had to staff the construction organization. There was a logical transition from construction to operations. I guess I'd have to say that it was a very advantageous working relationship between the two entities, two organizations, and at least for the first, up until 1992, we operated on a single

*Advantages to
Reclamation of
transferring O&M to
CAWCD upon completion
of construction*

contract that provided for the orderly transition and payment for their services to maintain the Federal facility. And in 1993, we got out of the business, and they inherited the whole thing.

Storey: That was because the project had been —

Morton: Well, at least the stage one, the Colorado River conveyance system, the water supply system I think is what it's defined as, the three aqueducts, the pumping plants, and so on. Waddell Dam and Waddell Generating Plant are still being operated under the operation contract that we had with CAWCD. They'll be turned over this month, September of '96. The Federal payment for the differential between revenue generation and cost will cease at that time, and CAWCD will have to pay 100 percent of the O&M costs from the revenues that they collect.

Storey: Plus, presumably, repayment costs.

Morton: Plus whatever added increment's necessary for the capital component, yeah.

Storey: Were there any difficulties in the transfer of O&M to them? Is that something they wanted to do, were willing to do?

Morton: I think that the CAWCD board, once that they had been authorized by the state legislature to move forward with the care, operation, and maintenance of CAP, viewed this as an economical transition, a way that where CAWCD would not be burdened with collecting sufficient revenues.

The cost of setting up an organizational infrastructure and operating the canal system is not directly proportional to the miles of canal that you operate. The first component of cost is

setting up the organization, and that's much larger than the increment. So if CAWCD had been forced to pay for O&M of the first 100 miles of the canal based on the revenues they could have got from the Harquahala Valley Irrigation District, they either would have had a very poor organization or they would have been trying to collect several hundred dollars an acre-foot from the Harquahala Valley Irrigation District.

I mean, the canal was sized to serve a million acres of irrigated land or to serve 640,000 acre-feet of domestic use, and if Harquahala was only taking 60,000 acre-feet, they certainly couldn't be expected to pick up the full cost of the supply canal that came from the Colorado River to the Harquahala Irrigation District. Either the cost would have been prohibitive and they wouldn't have bought any water, or if CAWCD had to operate based on the revenues they could realize from the Harquahala Irrigation District, there wouldn't have been a lot of money to actually support the work force that they needed to support. So I think that the board viewed that the process that had been laid out as very advantageous in that they got to grow and they didn't have to utilize either reserve funds or make some up-front capital investment in their operating organization. They could spread it out over a long period of time, and the United States would capitalize whatever that cost was, and then they could pay for it over a fifty-year time period. So that was good from that perspective.

CAWCD was receptive to employing the government work force. Not all people that were working for Reclamation, who were working in the O&M area for Reclamation in 1983, went to the District. A large share, I'd say close to 90 percent, did accept jobs with the District who were offered. But we did place several people —

we didn't have to RIF anybody, but we did place several people in the construction organization who declined employment with the District, for one reason or another. If you've got twenty-eight years of government service and you want to get thirty, you probably want to continue to work that last two years for the government and not go to work for the District. Several people opted out for that who had long-time government work experience.

I think the only problems that I observed were problems related to salaries. The initial hiring of federal work force was based on their comparable Federal salary, and shortly after that work force was established, many of the support functions did not come from Reclamation. The District went out and hired their own financial management staff, went out and hired their own personnel or human resources staff, went out and hired their own safety staff, acquisition procurement staff. They were not generally former Reclamation employees or former Federal employees. I mean, they were hired from the local work force.

Shortly after things got rolling, of course, the personnel organization, for example, said, "Well, we need to develop our own personnel system. This old system that's based on OPM, Office of Personnel Management, the Federal way of doing business doesn't make sense." They restructured the classification system, and they started coming up with new job classifications and pay schedules associated with those job classifications, and they generally went to comparable positions in the local commuting area. For example, if you had a plant mechanic or electrician, they assessed what the Salt River Project was paying for electricians or what the

*Salary problems when
C A W C D hired
Reclamation employees
for O&M*

Maricopa Water District or the city of Phoenix salary schedule was for electricians, and these were generally non-union jobs. The comparable work forces in the city of Phoenix or the Salt River Project, they might have been non-union jobs or they were not consistent with how the Federal Government was paying, because the cost of living would be less in Phoenix than it would be nationally.

And so there was some differentials, and I think the problem was that you've already got an electrician that came from the Federal Government working on your work force, and his salary, initially at least, was tied to what he was making when he was a Federal employee, and so they had to establish ranges of salaries. And now they were hiring entry-level or even journeymen electricians, and they were making a dollar or two dollars an hour less than what the former Federal employee was making, and the top end of the schedule, you had to make the schedule long enough or have enough steps in it so that you got out there to the top level guy, the former Federal employee. There was quite a differential in what they were paying an electrician with the same responsibility, between the new hire as opposed to the former Federal employee, and I think that caused them a lot of problems initially, until either the former Federal employee retired or the escalation of the new hire achieved the same pay scale, pay rate, that the former Federal employee was getting. There was a lot of, I won't say animosity, but there was a lot of concern being expressed by employees that they weren't making as much as that former Federal employee as they built up their staff.

And then weaning former Federal employees away from certain other job securities that might be invested in the way we do business

as opposed to the way a private entity or state entity would do business. There was always a lot of friction between how you did — many people would state, "Well, we used to always do it this way," and their new bosses didn't like to hear that. They'd say, "Well, you're not working for the Federal Government anymore, and we're going to do it this way."

It tended to be more human interaction kinds of problems than financial problems or poor quality work or anything like that. I think that the work quality was always good. We could always deal with the financial issues, but the District's work force took a period of time to mature and get away from the finger pointing and the stigma that might go along with former Federal employment.

Storey: Did CAWCD agree just across the board to take everybody in the O&M function who wanted to transfer?

Morton: They had the opportunity to assess who was there, and I won't say they were granted the opportunity to pick and choose. I think it was a mutual agreement that, if an individual was qualified, they would extend an offer, and they did. They lived up to that. I won't say anybody was pushed off on them. I don't think anybody was. I think that they had the opportunity to review all of Reclamation's interim O&M force and make a determination on whether or not they were qualified. I think if they had concluded that someone was not qualified for the job we were recommending that they fill, they would have not offered that individual a position, but they didn't. I think that we worked very closely with them to ensure that they were satisfied that they were getting good-quality people.

Storey: On the one hand, we were transferring this function away from the Federal side of the operation. Yet, it's Federal property, so we have the responsibility to make sure that the O&M is being done properly, I presume.

*How Reclamation does
O&M oversight on CAP*

Morton: Right.

Storey: What happened in terms of that function, then?

Morton: Well, the oversight function we will have forever. I mean, that's just part of good business practices. You don't turn over \$3 billion worth of Federal property and not ensure that it's being properly maintained. We've got a major interest. A major component of the water to be delivered is going to Federal contractors. So we do exercise an oversight role. We currently have I think about six employees —

END OF SIDE 2, TAPE 1. SEPTEMBER 5, 1996.

BEGINNING OF SIDE 1, TAPE 2. SEPTEMBER 5, 1996.

Storey: This is tape two of an interview by Brit Storey with Larry Morton on September 5, 1996.

*Staffing for O&M
oversight*

We have about six employees, full time, dedicated to oversight.

Morton: Right. And then we have a number of individuals who at least some component of their job involves oversight, may be anywhere from a tenth of an FTE to a half an FTE per individual. So that the total is about fourteen FTEs, full-time equivalent persons, who conduct oversight, and that's not just the physical oversight of ensuring the soundness of their operation, but it involves managing the Development Fund, ensuring that the receipts are properly credited, ensure that the obligations are properly paid for, involves everything, like I say,

from financial management to physical maintenance of the facilities. So there's about fourteen FTEs within Reclamation dedicated to that role. That's roughly a million and a half dollars a year of costs that are reimbursed by the Development Fund or that are paid for by CAWCD. In some instances, they're paid for by CAWCD and some they're reimbursed, their salaries are paid for by the Development Fund.

Initially, several people left Reclamation and went to work for the District under Intergovernmental Personnel Act¹ assignments, so they would go for two years to the District. And because of the fact that the District had to have certain moveable property and motor vehicles and heavy equipment to do a maintenance job, those individuals, who were still government employees, became the accountability person or officer for that property. So those individuals — who were kind of wearing two hats at the time. Their paycheck was coming from CAWCD, but they still had an employment status with the government. They kind of initially fulfilled that oversight role for the first, oh, up until about 1990. And then after 1990, many of those people retired, or retired from the government and went to work for the District.

So a separate and distinct work force was set up within Reclamation within the Phoenix Area Office, and like I say, there's about six of those people now. What can I say? Their role is to make sure that the District maintains services and maintains the property in a sound manner.

Storey: To Reclamation standards?

Morton: Generally to Reclamation standards, yeah.

¹ *The Intergovernmental Personnel Act (IPA) provides a way for Federal agencies to provide personnel to non-Federal positions and vice versa. The idea is to exchange expertise out of and into the Federal Government.*

Storey: Have we had any trouble with that? I can see where we have a situation where they feel that they've been made to pay too much for the project as it is, so they want to sort of maybe scrimp on some of the O&M.

Morton: I think that, to a certain extent, CAWCD may go the other direction. An example might be security. I think that CAWCD's security force is probably significantly greater than what you might see on any other Reclamation project, but maybe that's because it's dedicated security and on many other Reclamation projects the ditch riders, the patrols that are out on the canal bank for another Reclamation project have that dual responsibility. They're kind of the eyes and the ears and the security of those programs of those districts, as well as the operator, the person that actually adjusts the gates and ensures that the water is flowing properly. So CAWCD has a security force of about thirty former security officers. They may be retired military police. They may have a background in police or law enforcement. But they have about thirty full-time people working in security, and you just don't see that on a normal Reclamation project. They're uniformed security people.

But on the other hand, in defense of that, because of the automated nature of the system, there are no ditch riders out on the canal bank in a pickup truck observing what's going on out there, so maybe it's just a one-for-one offset. You hire more security people, but you have fewer ditch riders.

But CAWCD has been vigilant in their maintenance program. I think that, like I said, they may do a little more than Reclamation. An example would be the situation we have at the

***CAWCD security forces
on CAP***

***"CAWCD has been
vigilant in their
maintenance program"***

Havasu Pumping Plant. When the plant is in full operation, there's six units in the plant, when all the units are operating, it's a very noisy operation. There is a vibration in the plant. It's attributable, in our view, to harmonic distortion in the impellers of the turbines, and CAWCD would like to cure that.

We've concluded that the best way to cure it is to fix things as they break. If you have a minor vibration, for example, in a given pump unit and some of the auxiliary equipment, where it ties to the unit, the oil lines or cooling water lines, they tend to fatigue and they can break, and our attitude would be, well, go fix the line, put a new line in. It's not a life-threatening situation. It's not a situation that will cause major disruption to the system. It's just a normal preventative maintenance program every two years or three years, whatever the time cycle is. As various components fatigue as a result of the vibration, you replace the components. So that would be our position on it.

CAWCD would like to see the vibration problem solved and, in turn, reduce their O&M problems. So they're probably doing more in the way of maintenance than Reclamation would typically demand of itself if we were doing it at our plant.

We've talked earlier about some of the maintenance that I've observed in the pumping plants that are operated by the California Department of Water Resources, much better than plants immediately adjacent to it as part of the Delta-Mendota Canal that Reclamation operates. I mean, it's like night and day. I think that, at least on the surface, CAWCD probably does not come up to the high level of spit and polish that you might see in a Department of Water Resources pumping plant, but they certainly look much better

visually than some Reclamation plants that I've been in. So I think that they're doing a high-level job of maintenance.

I don't think that the oversight that we've employed to date has been burdensome to CAWCD. It may become that way, but right now they've got a relatively new system. They have a well-trained organization, many of whom got their start in Reclamation. They understand what's necessary to keep an electrical and mechanical system in operation over a long period of time. You know, fifty to 100 years they're going to have to live with this system, and I think they're dedicated to keeping it in operation.

Storey: One of the things that has happened with CAP is, of course we started delivering water, and our water deliveries steadily increased. If I'm reading materials that I got correctly, then all of a sudden, in 1991 water deliveries dropped from 740,000 acre-feet to maybe a little over 400,000. Everybody in Arizona began to get nervous, and as I understand it, the governor, Fife Symington, put together a task force to see how Arizona could use its full CAP allocation and so on. Since then, in '94 at least, the water deliveries had gone back up. Could you give me a perspective on what was going on here and how people were reacting and why they were reacting and that sort of thing?

Morton: I think that the problem got started a couple of years before it became manifest to most people. At least that's what many of the irrigation districts have told us. The principal cash crop, if you will, in Arizona is cotton, and in 1989 the prices paid for cotton dropped quite dramatically. In 1990, while the market was deflated, we had a severe infestation of white flies, we had a severe infestation of boll weevil, and the combination of

Arizona's reaction to reduced use of CAP water in 1991

low yields, as well as the second year of low prices, basically decimated the cotton farmers in Arizona.

For that period of time, either through operating reserves or their ability to borrow funds, the cotton farmer was able to continue with no outward reduction in what was going on. In other words, to the outward viewpoint, everything was copacetic. I mean, there was no sudden change in what was going on in the world. It just is, the farmer was getting more and more in debt. And by the third year, '91, the farmer was really hurting. He went out to try and get his crop production loan, and the lenders said, "Wait a minute. You've lost big bucks the last two years. You're substantially more in debt than you were in 1988. We have reservations about giving you an additional loan for crop production. On top of that, the market prospects aren't any better this year, and we haven't solved the pest problem, the insect problem that you're facing."

So in '91 and '92, the crop production people had a real difficult time in lending funds because of the depressed farm economy in Arizona. So the farmer had only one recourse, and that was to stop farming and reduce his use of CAP water, and that's what happened. That was what the 350,000 acre-foot fall-off, if you will, in the curve that we were experiencing. I mean, we fully expected to see that curve continue right on up to a million and a half acre-feet. Probably by this time, by 1996, we expected the extrapolation of the curve to reach the full supply and we'd be fully operational by the time the regulatory storage facilities were turned over to CAWCD.

Well, this little bump in the road occurred, and the demand for CAP water fell off very dramatically. And as you said, the governor appointed a blue-ribbon panel to evaluate how

Arizona could more fully utilize its remaining entitlement. Well, first of all, actually I guess there were probably two panels. The first panel was chaired by Betsy Rieke, and it was intended to get to the bottom of what the problem is, I mean what's going on here. CAP isn't going to be able to pay it's way. Arizona's going to look bad in the nation's press. The Federal Government spent \$3 billion in Arizona to build CAP. Now we're all going to go bankrupt, and we won't be able to meet our debts, and so on and so forth. So what caused this situation that we're facing now, that was the objective of the first committee, and they looked into causes and results, if you will, causes and effects.

Storey: This is when Betsy Rieke was the Assistant Secretary?

Morton: No. Betsy at that time was the Director of the Department of Water Resources and directly responsible to Governor Symington. A year later, Betsy was Assistant Secretary of the Interior and Rita Pierson had been appointed the Director of the Department of Water Resources, and the second governor's advisory committee looked into, how can we possibly improve the situation and bring more water into Arizona?

The bottom line was, basically the irrigation districts indicated that the best way to improve the use of CAP water was to reduce the price or give the irrigators some additional incentives to use CAP water, and that was basically the approach that was taken in '93 by CAWCD. I think that there was a realization in 1992 that something needed to be done. Our original concept was to turn over the aqueduct system and put CAWCD in repayment in 1992.

Irrigators wanted the cost of water reduced

At that time, the permanent water service subcontracts would take force. All of the irrigation districts had signed up for their water under those permanent water service subcontracts. But during this interim period, '87 through '92, they had been taking water under interim contracts, so the terms and conditions of the permanent contract were not enforced.

The one provision that really had the irrigators concerned was the fact that in their desire to ensure that they could get as much water as possibly available, they had committed to, in the permanent contracts had committed to what's known as "take or pay." They agreed to take all the available water — in other words, the million and a half acre-feet, less whatever was being delivered to M&I users and Indian communities — they agreed to accept that remaining water supply, which could have been as much as 1.2 million acre-feet, or to pay the fixed O&M charge associated with that. They would get relieve from the energy component, the variable O&M component, but they would have to pay CAWCD the fixed component.

Well, it's kind of difficult to pay \$60 an acre-foot for water, or pay \$35 an acre-foot and not get any water, and still make a profit when you're principal crop was in a very depressed state, namely cotton. So in '92, it became very obvious that if the United States placed CAWCD in repayment and the permanent water service subcontracts were enforced, we would see wholesale bankruptcies on the part of the irrigators, the ten or eleven irrigation districts which had subcontracts, or those same districts were going to be in breach of their contracts, one

Irrigators agreed to "take or pay" clauses in their water contracts

or the other. They could not afford to make the fixed O&M payment and continue in any solvent condition.

Reclamation said to CAWCD, the Department of Interior — [Assistant] Secretary [of the Interior for Water and Science John M.] Sayre, said to CAWCD there in 1992, "We're involved in this problem. We understand, but we've got a commitment to the people of the United States, and we need to make a payment to the Treasury. The financial aspects of the Federal Government, through our budgetary process, have indicated that the Treasury will get a payment this year." And so they worked out, CAWCD and the Department, John Sayre came out here and personally was involved in the negotiations, agreed to delay the completion of the project by a year, delayed transfer and notice of completion by a year, and CAWCD agreed to pay twenty and a half million dollars as their piece of the payment to the Treasury of the United States. I think they characterized it as a prepayment, since it was not after Declaration of Substantial Completion, was prior to the initiation of the fifty-year repayment period because it wasn't until a year later that we did the formal declaration. So I think it's properly characterized as a prepayment, but the bottom line was, CAWCD paid their obligation, their repayment obligation to the United States for calendar year 1993, on January 15, 1993, made their payment for calendar year '93, or made a prepayment in lieu of making their actual payment, because we didn't declare substantial completion. We agreed to delay that by a year.

*Department of the Interior
delays declaration of
completion one year*

The intent there was that CAWCD and the subcontractors would have another year to work out the methodology to keep everybody solvent. What CAWCD did then was to allow the irrigation districts to enter into excess water contracts and withdraw from their permanent water service contracts, and those arrangements were never approved by the United States and are currently part of the litigation that's ongoing between CAWCD and Reclamation. It's always been our position that any intent to modify the permanent water service contracts that were entered into between 1983 and 1988 and executed by three parties — CAWCD, the irrigation district, and Reclamation — any attempt to do that would require the approval of the United States. CAWCD's position is it doesn't, and they did it, and they entered into separate contracts, and those separate excess water contracts now, by CAWCD board action, involve water service charges that are significantly subsidized by CAWCD.

CAWCD's present budget provides for about \$33 million of annual operation and maintenance costs. If you distribute that on the basis of a million and a half acre-feet, it's about \$22 an acre-foot. They're not selling anywhere near a million and a half acre-feet, so if you base it on a million acre-feet, it would be \$33 an acre-foot. They have created several pools. Pool 1 water they sell for \$18 an acre-foot. That's less than their actual fixed O&M cost. Their actual fixed O&M cost, if they sell a million acre-feet, would be \$33. They're selling 200,000 acre-feet for \$18. That doesn't even take into account the energy. The energy is about \$34 or \$35 an acre-foot. So they should be charging something on the order of \$68 an acre-foot, and at least one pool they're selling, there's a 200,000 acre-foot pool that they're selling for \$18. There's a second

CAWCD signs excess water contracts with water districts and allows withdrawal from permanent water service contracts

200,000 acre-foot pool that they're selling for \$28. There's a third pool, that's basically an unlimited pool, that they're selling to agriculture for \$43 an acre-foot. All of those are less than the market rate for water.

You asked the question, how come the usage has gone up. That's the reason the usage has gone up. CAWCD has developed a subsidy program, and, in turn, they're effectively tapping their operating reserves to make that subsidy work. Or a more parochial viewpoint would be, they're not paying the United States the \$91 million they owe us this year, and some of that \$91 million is sitting in the bank at interest, and they're drawing out a little bit every month to subsidize their water users. So that's another point of contention in the lawsuit is, why aren't you paying us the money you owe us, first of all; and, second of all, how can you sell this water at less-than-market rate and not recover your full O&M?

Storey: What do you think they're going to think? What do you think they're trying to achieve here?

Morton: I don't really know. After thirty-four years of government service, maybe I'm too close to Reclamation's viewpoint on this, but the bottom line is, they signed a contract, CAWCD signed a contract — said they'd repay their obligation, as determined by the Secretary, over fifty years. We told them for Stage One they owed \$1.6 billion, and they said, "We don't agree with that, and we're not going to pay you on that basis."

I think that's a contract default, and I think that the court should either compel them to pay or provide a mechanism where the United States can recover the system. I mean, the bottom line is, \$3 billion of Federal taxpayer funds have flowed into the state of Arizona over the last twenty years to

construct the Central Arizona Project. We thought we were going to get repaid, and we're not. We're not being repaid at all.

Storey: Can we terminate the contract?

Morton: No. What we can do is shut the water off. The contract provides that after CAWCD is in arrears by a year, after their arrearage has occurred for over a year, or up to a year, twelve months, we can curtail deliveries at the Colorado River. I don't know how we physically do that, but that's what the contract provides for. They'll be in default a year, presumably —

Potential Reclamation responses to CAWCD repayment arrears

END OF SIDE 1, TAPE 2. SEPTEMBER 5, 1996.

BEGINNING OF SIDE 2, TAPE 2. SEPTEMBER 5, 1996.

Storey: You were saying they would be in default for a year.

Morton: For at least a portion of that \$91 million, on the 15th of January 1997. In other words, in 1994 the payment that they made to the United States was an advance credit on money that they had loaned us to purchase the Harquahala Valley Water District's entitlement to delivery to the Fort McDowell water rights settlement. That was a credit that was owed them, and that was applied against their payment that became due in January '94.

In January of '95, the Assistant Secretary's team was still in negotiations, and I think, if I remember right, the bill was for about \$54 million, \$53 million, and CAWCD said, "We believe that we only owe the United States \$33 million." So they made a \$33 million payment, and since there were negotiations ongoing at that time, the Assistant Secretary agreed to not, since

there was \$20 million being contested, agreed not to force that issue and agreed to put that \$20 million, to hold that payment, hold it in abeyance, until such time as either an agreement was reached or the negotiations were terminated.

The agreement was not reached in June of '95. The Secretary did not sign the agreement. CAWCD was notified, I believe it was in March of 1996, that negotiations were, in fact, terminated and they needed to pay the United States the \$20 million that they still owed us from 1995. Of course, the bill for 1996 became due on January 15th, and that was for another, I believe it was \$67 million. And so they owed \$67 million for January of '96. They owe \$20 million that's left over from their obligation for January of '95. The penalty for not making payment, according to the contract, is 1 percent per month on the unpaid balance, so every month another \$870,000 is added to the bill, and as of August 4th, the total bill was \$91,350,000. And now that it's September 5th, I guess it's really \$870,000 more than that.

So the bottom line is, it keeps building, and, of course, we've been in litigation over what they owe the United States since July-, August-, August I guess it is, in '95, so we've been in litigation over a year. I don't know how much longer that will go on, but certainly CAWCD's debt is going to continue to grow. We will be declaring substantial completion on Stage Two construction. That will add to their repayment obligation. Under the repayment contract, their repayment obligation has a ceiling of \$2 billion, so their next payment will be based on that \$2 billion obligation, since that's the cap. So on whatever the interest, there's probably going to be another \$80 million or so for capital and interest. It'll become due and payable on January 15th of

'97, so that will be approaching \$200 million CAWCD will owe the United States.

In the meantime, they're delivering water, but they're delivering it at extremely subsidized rates, and their taxes and the collections that they're making from *ad valorem* taxes and surplus power sales will not offset their obligation. They need to collect the fair market value of that water if they're going to be solvent in terms of paying the United States — what the United States thinks they owe them. But they're going to continue to contest that so long as they're in this condition, I think.

Storey: What are people thinking about their chances of prevailing? I mean, obviously they think they're achieving something.

Morton: Well, certainly they're delaying the inevitable, I think. Even if Reclamation acknowledges — well, even if the court rules against Reclamation, CAWCD in their pleadings would indicate that their repayment obligation is limited to about \$1.781 billion, I think is the number that they're using presently. The interest on the unpaid balance at \$1.7 billion is about \$50 million a year by itself. So even if they acknowledge that that's the limit of their obligation, they still owe the United States \$50 million a year in interest. So how are they going to pay that? That's a big chunk of money.

CAWCD's obligation even if it prevails in the lawsuit regarding repayment

Storey: Yeah. It is.

Morton: And then another roughly \$30 million in capital. That's \$80 million. If they're collecting \$2 million a month from power sales, roughly, that's \$24 million a year. They're getting another \$15 million from *ad valorem* taxes. That's \$39

million. They've got to make up another \$40 million in water sales. They're not doing it.

Storey: You said a little while ago that our remedy was to cut off the water.

Morton: That's what the contract calls for.

Storey: That's what the contract says. Let's talk about two things. One is, is it physically possible to cut off the water; and the second is, is it politically possible to cut off the water?

"is it physically possible to cut off the water; . . . is it politically possible to cut off the water?"

Morton: Well, it's certainly physically possible. The works are entitled to the United States. We can flip the circuit breaker and close the flow of energy to all the pumping plants and they can't move any water. As a matter of fact, we don't even need to do it to all the pumping plants. We can just close the breaker on the circuit to the Havasu Pumping Plant, and they can't take any water out of the river. So physically it's not —

Storey: Physically is it possible for the system to survive being de-watered?

Morton: I would think that — it can't physically be de-watered. They can pull it down to the sump level in the other pumps, but there would still be eight feet of water in the canal. I don't think that would be a sound move to either pump the system down that low in the canal. Obviously the canal would suffer substantial damage if they chose to de-water it in that fashion. The pressure behind the lining would cause the lining to buckle and fail. I don't think anyone in their right judgment would do anything like that. I don't think CAWCD would. But physically, they would just close the checks and close the turnouts.

Storey: And keep the canal full.

Morton: Well, relatively full. There would be some transition as they curtailed water orders, and obviously they could still operate. I don't know exactly how we might — physically, we would have to go into the facility at Lake Pleasant and padlock the gates on the outlet works at Lake Pleasant in order to keep them from operating, I don't know, and take, presumably, the Federal Marshal or something to do something like that. But physically, yeah, we can stop the operation of the canal and the delivery of water.

The other question was, is it politically viable, and [the answer is] probably not. Certainly from a legal perspective, CAWCD, the state of Arizona would be before a Federal judge in a matter of minutes if we suggested we were going to turn off the energy. I would assume that they would get some kind of temporary restraining order that would restrain the United States from stopping deliveries, and the situation would continue to be debated in the court in which it's currently being debated. So the net effect, I don't think, would — the bottom line, it's not going to happen until the current lawsuit is resolved one way or the other. I just don't see — if we attempted to turn it off, the court would order us to restore it, I think. It's not that the United States is in any imminent danger or anything like that. It's an action I don't think that would be justified. The bottom line is, we're arguing over money, and if we win, the District will pay us, and if we don't win — or maybe they'll pay us. Maybe they won't be able to afford to pay us, depending on what it is that they owe at the time the final resolution takes place. But quite obviously, even if the United States loses, there's a substantial sum of

money that's going to be owed to the United States by CAWCD, even by their own admission.

Storey: One of the things I picked up on in reading the materials, preparing for the interviews, was that there are delivery priorities on the Central Arizona Project system. Could you tell me about where those came from and what they're all about? Is it sort of like water rights? Water right number one gets deliveries first. Or how did these come about, and what's going on?

Why there are priorities on the way CAP water is delivered

Morton: Well, the priorities that are inherent in the water allocations and the contracts really stem from the 1968 act and the priorities that were afforded to California, as opposed to equal priorities amongst the three basin states. Arizona agreed to, or committed to, in the Colorado River Basin Project Act, committed to curtail its diversion of CAP water in times when there was insufficient water in the Colorado River to provide seven and a half million acre-feet of consumptive use in the Lower Basin. Right now this year, a surplus condition has been declared in the Lower Basin, about midway through the year. I think it was about the 20th of July, I think it was, the Regional Director declared a surplus condition within the basin, which means that the three Lower Basin states can use in excess of seven and a half million acre-feet. In a normal water supply year, we can use seven and a half million acre-feet, and in a shortage year, we would have to use less, and how much less is kind of an unknown, depending on the situation in the year in which that shortage condition is declared.

California, Nevada, and Arizona water users along the Colorado River have preference over CAP for water deliveries

But Arizona agreed to forego its CAP diversion and place the remaining piece of Arizona's entitlement on a *pro rata* basis with the other uses in the basin. So in a year that we're in

a shortage condition, a million and a half acre-feet, potentially, would be reduced out of CAP before California, Nevada, or the other 1.3 million acre-feet in Arizona forgoes any water deliveries, the way it's set up right now.

We've done a lot of hydrologic modeling within the basin, as have the other basin states, and we've pretty much concluded that even under the worst case scenario of water supply, CAP would never drop below 450,000 acre-feet. That means that under the worst set of conditions that we envision ever occurring, only roughly six and a half million acre-feet of consumptive use could occur in the [Lower Colorado River] Basin under that worst case scenario.

Well, at six and a half million acre-feet, that means California's still getting 4.4 [million acre-feet]; Nevada's getting 300,000. The users along the river in Arizona are getting a million-three. CAP's taking 450,000 to 500,000 acre-feet. Well, we've got contracts that say M&I's got 600,000 acre-feet, nominally, 600,000 acre-feet of contracts to M&I. The allocation's about 640,000, so there's a few entities that have yet to either sign up or have declined, and the state has at least indicated that it's their intent to contract up to that 640,000 acre-foot ceiling that's been established in the water allocations. We've got about 447,000 acre-feet of Indian contracts now. It started out at 257. Then as a result of additional allocations made to some additional tribes, we went to about 310 — 257, then 310. A number of water rights settlements have come along, and I think we're at 447 now. So in terms of water, we've got about a 1.1 million acre-feet, or pretty close to it, in contracts. And then the ag contracts provide that

Reclamation's hydrologic modeling indicates CAP's diversion would never fall below 450,000 acre-feet

How CAP water is allocated now (1996)

whatever's left over, the irrigators can have, the farmers, the contract farm, can accept delivery of.

Storey: The non-Indian irrigators.

Morton: So, the non-Indian irrigators, of course, in a worst case scenario, when we only have, say, nominally 500,000 acre-feet, the non-Indian irrigators would get zero, just by virtue of the fact that everybody else has more than, the other contracts total more than 500,000 acre-feet. And then as you suggested, there is a priority sequencing to pull that total down to whatever the available supply is, and it depends on, timewise, where we are. Maybe the municipalities have yet to develop their full contract entitlement of 600,000 or 640,000 acre-feet. Maybe it's — well, it wouldn't happen in the next five years, but say 2005 we have a poor runoff in the next ten years, the next nine years, and at 2005 it's apparent that the basin is in distress as far as water supply is concerned, and it's incumbent on the Regional Director to declare a shortage. If we declared a shortage at that time, the municipal schedule would probably say there's 400,000 of that 600,000 is really capable of being delivered, so the M&I needs would be at about 400,000 acre-feet, maybe 450, but let's just use 400 as an example.

By that time, by 2005, some of the programs we have ongoing at Tohono O'odham, Salt River, Fort McDowell, those will have matured and they will be using water. So it's likely that the Indian demand at that time will probably be something on the order of 200,000 acre-feet. So the demand for water by 2005, which is probably the earliest time frame under any scenario, worst case scenario, that we would have to declare a shortage condition. We would

A shortage condition on the Colorado River probably could not occur before 2005

probably have a minimum demand of about 600,000 acre-feet if you exclude the non-Indian sector. So if CAP only can divert 500,000, then there has to be some *pro rata* way of reflecting that shortage and, in turn, curtailing deliveries to those demand points. So that's what the priorities are in the contract.

Storey: And the reason you're saying 2005 is because —

Morton: Sixty million acre-feet in storage in the Federal reservoirs within the Colorado River system. There's a substantial amount that's in storage, and a shortage declaration won't be made until the reservoirs are probably a third of capacity. So if we use 40 million acre-feet of that 60 million, even with a minimal runoff over that period of time, it takes a number of years to see that decline in the reservoir.

Storey: To drain it down, yeah.

Morton: Drain it down.

Storey: Once we have the water, which we do right now, then it has to be delivered. Of course, you spent a lot of time working on the delivery systems. I don't recall that we talked a lot, however, about the Indian delivery systems, and I'm wondering about that. My understanding is, there's something in excess of \$150 million allotted to Indian delivery systems, and yet only one community has actually completed its water delivery, the Ak-chin.

***Indian delivery systems
and Reclamation***

Morton: That's correct.

Storey: Could you talk about what's going on there and why it isn't done yet and that kind of thing?

Morton: The Indian distribution division, the current estimated cost of that system for all ten of the entities at twelve locations is about \$410 million.

Storey: It's gone up.

Morton: Yeah. Four hundred and ten million is our current estimate. The expenditures to date, I think, are about \$75 million. So there's a substantial sum remaining to be invested in the Indian delivery systems.

In the eighties, we really got started in constructing delivery systems about 1982 or '83, and throughout the 1980 time period, many of the Indian communities were negotiating water rights settlements in legislative process to secure water rights settlements. It was almost impossible to reach closure with any certainty on where the water was to be delivered, how much was to be delivered, how much would be CAP water, how much would be settlement water, where the settlement water would come from, whether it would be part and parcel of the CAP conveyance or whether it would come from other sources. So there was a real lack of knowledge on how and when and where and how much to build for, because many of these decisions were up in the air, were in the hands of Congress.

The first water rights settlement act happened to be Ak-chin, and we got fairly rapid closure on Ak-chin. We knew that they had been afforded 85,000 acre-feet of water. We knew where it was to be delivered. Ak-chin is a relatively small reservation. I think we've got about 20,000 acres of arable land. Seventy-five thousand acre-feet is earmarked for that arable land at the present time. The Del Webb Corporation has a lease on the other 10,000 acre-feet. We were able to combine the principal

conveyance facility to Ak-chin with a facility that was being built for Maricopa-Stanfield Irrigation District. And so I guess we probably realized about \$12 to \$15 million worth of cost savings by working the Maricopa-Stanfield and Ak-chin concurrently, and it worked out to be a pretty good operation.

The remainder of the system, for one reason or another, didn't materialize for a number of years. Probably the biggest problem, or the most obvious problem, is the Tohono O'odham Nation. The Southern Arizona Water Rights Settlement Act was passed in 1984, I believe, and it stipulated that the delivery system would be built within ten years of enactment. It also required that the Nation resolve the water rights of the San Xavier District.

Well, twelve years after authorization, today, those water rights still have not been resolved, and so there's a substantial turmoil within the [Tohono O'odham] Nation with regard to what the San Xavier District and the individuals within the District should receive in the way of the overall settlement of 66,000 acre-feet. Of the 66,000 acre-feet that was allotted to the Nation as part of the Southern Arizona Water Rights Settlement, 32,000 acre-feet came out of CAP. No, that's not right. I can't even add in my head. Twenty-eight thousand two hundred acre-feet comes out of the settlement, and 37,800 acre-feet comes out of CAP. But it is anticipated that the whole 66,000 acre-feet will be conveyed through the facilities of the Central Arizona Project. It just is some of it won't be "CAP water." It'll come from some other source, probably those non-Indian agriculture contracts that, if they have to pay full price, aren't going to buy any water.

Issues regarding water deliveries on the Tohono O'odham Nation

But the bottom line is that we know how much water. We just don't know how much goes to the San Xavier District. And to the extent that they've designed a new farm, we've gone in and we've provided funds so that the community can make some judgments, make some decisions, there's still a lot of controversy about whether they will build a new farm. The intent was that they would farm —

END OF SIDE 2, TAPE 2. SEPTEMBER 5, 1996.

BEGINNING OF SIDE 1, TAPE 3. SEPTEMBER 5, 1996.

Storey: [This is tape three of] an interview by Brit Storey with Larry Morton on September 5, 1996.
An existing farm of 2,000 acre-feet.

Morton: There's an existing farm of about 2,000 acres at San Xavier, and the Water Rights Settlement Act provides that the farm will be improved and extended. There is a general agreement within the San Xavier District, within the community at San Xavier, on how to approach that. It just is, the Nation has yet to substantiate how much water actually goes to that new farm. In other words, the community knows what they want to do in terms of farming. It just is, the Nation has yet to resolve the water rights, and actually apportion the overall entitlement to those member lands.

The remainder of the entitlement that's supposed to go to San Xavier, which is one of the districts on the Nation — let's see, that would be about 50,000 acre-feet — is intended to be used on a brand-new farm that has yet to be constructed, and there are major concerns within the community for this scale of farming enterprise. Many of the members of the San Xavier District community are opposed to the land modification that would take place. All of the vegetation, of

course, would have to be removed. They have a certain affinity for vegetation, certain religious preferences that they have for the land itself and for the vegetation on the land, so that there is a reluctance at least on part of the community to plow that under and put it into a corporate farm. So until that's resolved, we don't really have any ability to design a system that will deliver water to that location.

The other component of the settlement was for about 15,800 acre-feet that is to go to the Schuk Toak District, which lies to the northwest of the San Xavier portion of the reservation. There's been controversy within the community with regard to whether the Water Projects Office or the Farm Board should have responsibility for constructing the facilities to deliver that water. We've had a contract now since 1991 with the Nation. That contract has been fully funded every year since that time. The Nation had the responsibility of determining what the plan would be, how the water would be conveyed, has had the responsibility to design the system.

At this time, there is a design in place for the pipeline that would take the water from the Tucson Aqueduct and convey it about five miles to the west to the reservation boundary at the Schuk Toak District. That design and specification was prepared by the Water Projects Office. They were prepared to bid the job. They had the solicitation out on the street. Bids were to close, I believe it was on April 4th of this year, and on March 31st the legislative council for the Tohono O'odham Nation took action to direct the Water Projects Office to cancel the solicitation and to enter into a sole source contract with the Farm Board to build that pipeline, as opposed to doing it through competitive procedures.

We've been working with them ever since then to try and get that done, and it's still up in the air. The Farm Board can't demonstrate it has the competency to build the pipeline, and the Water Projects Office is refusing to subcontract with the Farm Board until they demonstrate that they can do the job. It's all an internal conflict within the Nation itself. We've budgeted money each and every year since 1990 to full-fund the development, and other than salaries for the planning and design staff that work for the Nation, not one penny has been spent on physical construction of the delivery system.

And that's kind of a unique situation. The Salt River Pima-Maricopa system, approximately \$11 million worth of construction should be completed early next calendar year, and they'll be taking CAP water in 1997. The delivery system for the Fort McDowell Tribe is in about the same situation. As a matter of fact, I think they're making interim deliveries this year. They have a little different situation in that rather than taking a direct delivery of CAP from the main aqueduct system, they'll divert water either through pumps or by a diversion structure on the Verde River — pump from the alluvium of the Verde River and/or divert water from the Verde River. The replacement supply will, in turn, be delivered to the Salt River Project at Granite Reef Diversion Dam and make up whatever is actually being removed from the Verde River, which would flow down to the Granite Reef Dam and normally be diverted at that location.

The Fort McDowell community has about 900 acres under cultivation this year. That pretty much maxes out their historical water entitlements, and so I think they're putting in another 160 acres right now, so that would have to

*Issues regarding water
deliver to the Fort
McDowell Tribe*

come out of their CAP entitlement next year. The delivery system is in place to deliver that water. It just is that the land is being subjugated this fall. So they should be taking probably about 500 acre-feet of CAP water next year to farm that newly subjugated land.

We're in the process of entering into planning contracts with three Apache tribes — the San Carlos Apache Tribe, the Tonto Apaches near Payson, and the Camp Verde Tribe up the Camp Verde. They now, at least in the case of the largest one, the San Carlos Apache Tribe, they do have a water rights settlement. They know that they're going to have 50,000 acre-feet of water. They know that 12,700 acre-feet of that comes out of CAP. But they don't know where to apply that or for what purpose to apply it, so that's the reasoning and the rationale for the planning contract that we're entering into. It'll be a self-governance form of contract, 638 contract, and it'll be pretty much up to the community to decide amongst themselves where and how to make use of their entitlements.

The Pasquiacki Tribe has an entitlement to about 500 acre-feet. They have a small reservation located west of Tucson. It's very near the Tucson Aqueduct, and we envision a short pipeline that will be constructed next year to deliver their water. They've indicated they want to start a small farming enterprise at that location. So I don't see a big problem with that occurring in the next year. Probably the first water deliveries would be made in 1998.

Water contracts with the three Apache tribes

Pasquiacki Tribe water entitlement

The big water user within CAP, the single-biggest contractor, at 173,000 acre-feet, is the Gila River Indian Community. They are still negotiating on a legislated settlement to their water rights. They have two lawsuits pending in U.S. court. And so we're funding them, funding the community, to the tune of \$11 million in 1996 and \$19 million in 1997. They expect that in 1997 their first construction contract will be awarded. We're talking a delivery system capable of delivering water to about 77,000 acres of land, so it's a rather extensive farming operation. Their current modern farm, their Gila River corporate farm, consists of about 16,000 acres, and that would be included in the 77,000 acres.

The remainder of the subjugated land on the Gila River is pretty checkerboarded, significantly checkerboarded. There are a number of uneconomic remainders in that pattern. It's going to be very difficult to subjugate those lands because they're held in heirships of fifty to a hundred individuals, and you need to get every one of those to approve that development. So the Tribe is going to have a very difficult time, I think, in actually subjugating all that land because of the allotment process that was in place for Indian reservations right after they were set up. I don't know how the community is going to deal with that.

There are a number of tribal lands, a number of acres of tribal lands that could be subjugated. It just is they're generally consolidated in just one area. There are ten districts within the Gila River Indian Community. Each district anticipates a different use for its share of the water, and that hasn't been resolved yet. The community is preparing a general plan for development and a programmatic environmental impact statement. That's supposed

"The single-biggest [water] contractor, at 173,000 acre-feet, is the Gila River Indian Community"

to be completed in December. The Tribe is conducting public involvement right now in an attempt to reach consensus, but it appears that each of the districts has their own view, and none of them are compatible with the general plan. So we'll have to see if we can achieve closure. Certainly pieces of the system can be built, and that's how the community is addressing the problem right now. Those portions of the delivery system that predominantly serve the corporate farm that is in existence will be enlarged and/or rehabilitated with the initial infusion of funds from CAP, and it will probably be another two years before they take much in the way of a direct delivery from CAP. But the overall plan may take a long time, just because there's a lot of, or a lack of consensus. I won't say a lot of dissension, but just a lack of consensus. Everybody has a different view on how to use their CAP entitlements. Some of the districts would like to see the entitlements go to recreation development. Some would like to see the Gila River be restored to a flowing condition, and they'd like to see the CAP water be released to the river channel and have it infiltrate into the groundwater as a groundwater recharge adjunct, and at the same time, improve riparian habitats along the river. Some of the communities would like to use it for corporate farming. There are some individuals who would like to go back to subsistence farming and the historical crops that were grown on the reservation. So you've got a divergence of opinion, and we were very unsuccessful, Reclamation was very unsuccessful when we attempted to develop plans on the reservation. So I think this approach now, the approach that was mandated by the self-governance laws, is probably a better approach. It just is, it does not appear to produce any immediate results. We probably

weren't going to get any results, either. It's better for the community to act as a sovereign and chart its own destiny, and we'll be here to continue to request appropriations under CAP, but I don't foresee that there's going to be a lot of CAP water used at Gila River in an immediate sense.

Storey: I seem to pick up in your discussion that there are two types of water going to the tribal groups, entitlement water and CAP water. I'm confused about that, because I guess I thought that they were supposed to receive allotments that covered all irrigable lands on the reservations, and that may be a misconception on my part. And, I know Commissioner Stamm directed the historical irrigation patterns be used as a pattern, but tell me more about what's going on here.

Morton: Well, a good example would be — well, I probably need to talk about two examples. One would be Gila River, obviously. Our assessment of the Gila River's situation in 1973-74 time frame was that there were about 62,000 acres of land that had been developed, and our assessment of their surface water and groundwater resulted in an allocation of 173,000 acre-feet.

The community, and its questionable today what their overall water budget is, but from time to time in their negotiations with the state of Arizona, with the surrounding irrigation districts, with the municipalities that abut the reservation, they've alleged a need for anywhere from a million acre-feet down to about 600,000 acre-feet. There is a Federal negotiating team that has been working with the tribes, and they have locked in on a water budget, and I think that the number that they've focused on right now is about 692,000 acre-feet. But that has varied from time to time, and we're not really, Reclamation's not really

privy to those negotiations, although some Reclamation officials serve on the Department's Federal team, but they serve as Department of [the] Interior representatives, not in their regular day-to-day role as Reclamation employees.

At 692,000 acre-feet, of course, there is a certain level of assured water supply that comes from the San Carlos Project, the Bureau of Indian Affairs San Carlos Project that is basically water stored behind Coolidge Dam and some yield of groundwater. The amount that is currently being used is somewhat different than what was used in Reclamation's analysis that developed 173, and I don't know exactly how they're different or what order of magnitude they're different. I can just tell you that they're different.

My understanding is that within their CAP entitlement, their locally available groundwater entitlement, or the amount of water that's available locally within the community from groundwater sources, and the amount of water that's developed by virtue of the San Carlos Project — surface water that's developed — results in about somewhere on the order of 350,000 acre-feet, which means that there's roughly another 350,000 acre-feet of the community's water budget that's unsubscribed. That's a lot of water to be made up in Central Arizona. Various entities, through the negotiation process, have sat down and concluded that, well, yeah, we might be responsible for some of the loss of water that's occurred, and, yeah, we can provide some water to participate in that attempt to subscribe that 300,000 or 350,000 acre-feet. There are other communities that I think a court would conclude, or not necessarily communities, or irrigation districts or other water users, who basically said, "Your water rights are no concern to us." And yet, it's quite obvious that they've been pumping out from under the Gila

River community for a long time, seventy, eighty, ninety, a hundred years, or they've been diverting water away from the Gila River and adversely affecting what the earlier courts have ruled were the time immemorial rights of the Gila River community.

So the bottom line is, there are some water users that are willing to participate in a negotiation, willing to volunteer some limited amounts of water to achieving solution. There are others that basically stonewall the process and say, "We're not going to participate, because we don't think we're at risk or we don't think we have any liability in this situation."

It's going to take a long time, but the bottom line is that the water budget for the Gila River Indian Community is predicated on about two and a half times the developed acreage that we used in our water allocation formula. I believe it's 144,000 acres is the measure of their water rights that they're alleging or that they're stipulating in their water budget that the Department is trying to find water for. I think we were at 62,500 or something like that in our analysis that developed the 173,000 acre-foot allocation.

So that basically is the differences, the amount of — and in reality, the much larger figures came about by what would be considered practically irrigable. If you apply the PIA [practically irrigable acres] rule of thumb measure of water entitlement that has been used by the Supreme Court in the past, practically irrigable acres, there's probably 300,000 practically irrigable acres on the Gila River Indian Community, and at a water duty of five acre-feet per acre, that would be a million and a half acre-feet, which is the entire CAP diversion from the Colorado River.

The community has reduced its demands, or its potential demands — not that I know that they ever demanded a million and a half acre-feet, but some logic could be applied that would define their entitlements to that extent. They've pared that down to something in the order of 600,000 or 700,000, and they feel that that's the amount of water they need to secure. . . — well, that's the amount of water they need to secure through negotiation. Obviously, if they were to litigate their full entitlement, they'd have to start at whatever the formula for practically irrigable acres would result in. I mean, that would have to be the basis of their claim.

It's going to be very difficult to come up with that amount of water. They've extended the CAP [allocation] a little bit from sixty-two and a half to 77,000 [acre-feet]. They've done some subjugation since the 1974 time period. I mean, that's twenty years- twenty-two years, and during that time I think that their corporate farm, their Gila farm enterprise, has grown from about 8,000 to 16,000 acres. They're continuing to expand their irrigation base by several thousand acres a year, and these will be new lands, newly subjugated lands.

They're also taking some of their irrigable acreage and taking it out of production, or irrigated acreage and taking it out of production. They're building resort complexes, building gaming casinos. They have a racetrack, automobile racetrack, and a drag strip and a recreation lake. They're putting a lot of recreating infrastructure in place on the reservation to raise funds. Whether they ever achieve — it's unlikely that they'll ever achieve their grand objective of delivering water to 144,000 acre-feet. They're just going to run out of land or run out of water before they get to that point. I think their mid-term

objective of 77,000 acre-feet is certainly achievable, and the CAP supply will generally provide for that acreage with available surface and groundwater. Whether the rest of it ever gets developed, and whether they ever achieve a legislated water rights settlement, I don't know.

Storey: But that would be mostly their water entitlement?

Morton: We just don't know where that increment of water would come from. Within the 77,000 acres, some of the 77,000 acres, probably 30 of the 77,000 acres is developed today to near-current standards. In other words, it's not encumbered by an allotment that involves innumerable individuals. It's either someone has a power of attorney over the land already and has consolidated those allotments and is farming it as a commercial operation today, or it is unallotted land, it's tribal land —

END OF SIDE 1, TAPE 3. SEPTEMBER 5, 1996.

BEGINNING OF SIDE 2, TAPE 3. SEPTEMBER 5, 1996.

Storey: Or it's unallotted land.

Morton: Yeah. It's held in trust by the United States for the Tribe at large, and, in turn, the Tribe has converted it into some corporate enterprise, whether it be a recreation enterprise or a farming enterprise. So those acres, those 30,000- 35,000 acres of the 77,000 could very easily be put into full-scale production and use CAP water to do that.

The rest of the water would be identified with the smaller acreages that are generally not contiguous, they're checkerboarded, and they're held by anywhere from ten to 100 individuals, and it's kind of hard for 100 different people to agree

on how to grow crops on ten acres. The process of consolidating that is going to be a long and tedious process, and it's just not going to result in a lot of water from CAP being used in the foreseeable future, in the immediate future. It's just going to take time to reach agreement and to develop the working capability to take CAP water.

Storey: I think I must be asking the question incorrectly. (Morton: All right.) So that you don't understand the issue I'm trying to get at. If I'm understanding what's going on, the Indian groups are getting two different kinds of water from CAP.

Morton: Oh, okay. Yeah.

Storey: They're getting entitlement water for which the government is paying the bill, apparently, for the delivery and everything, the fixed O&M and the variable O&M and everything. And then I got the sense from what you were talking about that they were also taking CAP water for which they were paying the O&M costs and so on. Is that a correct impression?

Morton: That's one of the deficiencies in terms of the present status of Gila River. All of the other communities that now have — there's the Ak-chin, there's the Tohono O'odham Nation, there's the San Carlos Apache Tribe, there's Fort McDowell, and there's the Salt River community. Those five all have, through their water rights settlement, all have some mechanism to pay for the CAP water.

They also have some additional water supply over and above their 1980 CAP contract that is being paid for through some other mechanism, whether it be through a trust fund, whether it be through appropriations, whether it

How Indian tribes are paying for CAP water

be from a commitment, a contract with a municipality that the municipality will pay for it. There's some other mechanism out there that provides for it. And so each is kind of unique, depending on the time period in which it was legislated.

The Ak-chin is probably the simplest. The commitment in the amendment to the Ak-chin Water Rights Settlement Act provides that the United States will appropriate the money each and every year, so right up there on the top, as probably the first priority in Reclamation budget requests, is a request for the funds necessary to, one, buy the water from CAWCD, convey the water through the Santa Rosa Canal, which is operated and maintained by the Maricopa-Stanfield Irrigation District, and the funds necessary to operate and maintain the delivery system on the Ak-chin Indian Reservation. So we develop that budget in each and every year and we submit it to Congress, and in terms of Reclamation and the Department of the Interior's budgeting process, it's right up there on the top, because if we don't get that money from Congress each and every year and the Tribe doesn't get the water to which they're entitled, the Tribe has a slam-dunk monetary damages claim against the United States. I mean, there's not a court in the world that would rule against their claim. It's a hard claim. The act provides for it. It says you can seek damages, and the damages will be assessed on the basis of this kind of formula. The damages are a whole heck of a lot more costly than these other three components I mentioned to you. So that one's fairly simple.

SAWARSA, the Southern Arizona Settlement Act² that provided 66,000 acre-feet to the Tohono O'odham Nation, also set up a cooperative fund, and some of the cooperative

² *The Southern Arizona Water Rights Settlement Act of 1982 is TITLE III of the act of October 12, 1982, Public Law 97-293, 96 Stat. 1261. TITLE I is Buffalo Bill Dam and Reservoir Modifications. TITLE II is the Reclamation Reform Act of 1982.*

fund was established by appropriations, some of it was from the city of Tucson, some of it was from the mines that were pumping out from under the Nation, some of it was from the state of Arizona. But the corpus of that fund, I think is \$15 million, and the law says that the interest on that fund can be used to operate and maintain to provide for the water. So it can be used to pay CAWCD for the water. It just is, 66,000 acre-feet costs more than what the interest on an endowment of \$15 million will provide. It's undercapitalized. We've pointed that out, and repeatedly pointed that out, and there are some activities ongoing with regard to amending that piece of legislation and to either recapitalize the trust fund or do something else to provide the money necessary to buy the water from CAWCD. When I say buy the water, I'm not talking about any profit or anything like that. I'm just talking about fixed and variable O&M. That's the price that we pay to CAWCD to deliver water is the fixed O&M and the energy component.

Salt River, Fort McDowell, San Carlos all have similar kinds of arrangements. They're either selling a piece of their settlement to Mesa or Scottsdale or Phoenix or Glendale or somebody and getting some proceeds from that sale, and then the proceeds are earmarked to buy the water that physically intends to be used on the reservation. So from a pragmatic point of view, the water that's going to be used, whether it's being used for irrigation or it's being used for some recreational purposes or it's being used for mining, as may be the case with the San Carlos Apache Tribe, whatever consumptive use that water is being put to will be paid for out of the net proceeds from some other arrangement. Each of those, there's more than one arrangement for raising the capital necessary to pay for the CAP water.

Gila River, on the other hand, has no water rights settlement. They have no revenue source to assist in buying their CAP water. There's nothing to preclude the Gila River community today — there is a delivery system in place. It is not the quality system, that they're entitled to, that we fully intend to build, but there is a system in place that will allow them to get CAP water today if they chose to. It just is, the water is going to cost them at least \$50 an acre-foot and maybe as much as \$80 an acre-foot. I think we're paying \$81 an acre-foot from federal appropriations for the Ak-chin water. We have included that in our litigation with CAWCD. We believe that that is an unjustified price. Under any formula that we can envision, the price should never exceed about roughly \$60 an acre-foot. They're charging us \$81. Our contract says we got to pay whatever they charge or they don't deliver the water, so we pay \$81, under protest, each and every month. Whatever Ak-chin requests, we multiply that by \$81 and we pay CAWCD that sum of money. But we protest it, and we're going to litigate it.

Storey: Well, we've spent another three hours. Let me ask you whether you're willing for the information on these tapes and the resulting transcripts to be used by researchers.

Morton: Yes.

Storey: Good. Thank you very much.

END OF SIDE 2, TAPE 3. SEPTEMBER 5, 1996.
BEGIN SIDE 1, TAPE 1. SEPTEMBER 6, 1996.

Storey: This is Brit Allan Storey, Senior Historian of the Bureau of Reclamation, interviewing Larry Morton, Assistant Area Manager of the Phoenix

Area Office, on September 6, 1996, in his office in Phoenix, Arizona, at about eleven o'clock in the morning. This is tape one.

Yesterday you mentioned saguaro relocation out at New Waddell. Would you tell me about that? What's it about?

Arizona native plant relocation at New Waddell Dam and other locations on the CAP

Morton: Well, Arizona has a native plant law that requires that certain species of native plants in Arizona be salvaged or cared for as development occurs, and Reclamation has committed itself to following that law. Although we're probably not legally bound to follow that law, the intent is well-founded in the state, so we have done that in the past, and we continue to do it.

In the case of Waddell, of course, the Lake Pleasant was going to be expanded from roughly 3,500 acres to a total of about 10,000 acres of land, so the water would cover an additional 6,500 acres of land. So we had a major native plant salvage program at Waddell, where we removed a number of barrel cactuses, a number of saguaro cactuses, a number of various of the state-protected species and salvaged them. The contractor that salvaged them stockpiled some of them for future Reclamation use. We used a number of cactus for landscaping around some of the permanent facilities, the recreation facilities, the outdoor center, the permanent park facilities that were constructed at Waddell.

But many of the other plants were opened to public salvage, and we allowed people to come in. They needed to go to the State Department of Agriculture and Horticulture and obtain a permit. They'd come in with a permit from the state, and we'd allow them to take five of any one cactus species to assist us in removing those plants that would be inundated by the rising water. It was a

pretty successful program. We did a number of commercial operations, where a nursery would come in and salvage a given area. The entire 6,500 acres that needed to be salvaged was too much for any one nursery to deal with, and we, of course, let the public come in first and then the nurseries whose principal business was cactus as opposed to some other plant species, they bid on the job and then they were allowed to use whatever they salvaged in their commercial operations. So we made a little money that way. Actually, I guess it probably cost us a little money, but the price that we paid to effectuate the salvage was reduced, offset by the eventual sale of the plants themselves. I don't know how many total plants were removed, tens of thousands I would guess. We had several weeks where the public could come in, and our construction inspectors guided them to various locations where they could salvage plants.

The big problem with saguaros, of course, is [that] as they get over about ten feet in height, it's impossible to handle them. The sheer weight of a saguaro, you needed a crane, practically, to manipulate one that's greater than ten feet or one that has multiple arms. A saguaro with two or three arms on it, it takes a crane, really, to move it around, and you have to cradle them so that they won't break. I mean, they will just shear right off from their own weight. They're filled with liquid, with water, so they're very heavy. It was quite an operation to move that many plants.

Storey: Did we advertise it or something?

Morton: Yeah. It was a competitive bid. What we did was, in the case of the commercial operations, we partitioned off the area and then we bid — I think we had four different schedules that we bid, and

various nurseries would bid on each one. One nursery won two of the contracts, and then we had two other nurseries that each had a contract.

It's quite a selective operation. It's not anything that the uninitiated wants to try. We had a lot of public people out there. They'd go out there and they'd look at a cactus and say, "Oh, that's a beautiful cactus." The thing would be twelve or fifteen feet tall, and, "I'll take that one." I don't think so. If you get a little barrel cactus, that's not a problem. But you start dealing with saguaros, that an individual could put in the back of his pickup truck and haul off. You probably don't want to get anything bigger than about a five-foot plant, because the weight and the problems with just manipulating it are too difficult to overcome. But a five-foot saguaro, a fellow in a pickup truck could back up and wrap the saguaro in a carpet remnant or something like that and lean it over against the bed of his truck and manage to haul it off without too much trouble.

We had individuals from the general public who didn't really know what they were doing, and the cactus would fall and crush the cab of their pickup truck and stuff like that. We had a couple of really significant accidents with people, members of the general public trying to salvage cactus for their personal use.

Storey: Now, the public would come in, after getting permits.

Morton: Right.

Storey: Did we charge them anything?

Morton: No. We just opened the area.

Storey: And said, "Feel free"?

Morton: Take what you think you can handle, up to five plants of each species.

Storey: Then when the nurseries came in, was this like a clearing contract?

Morton: Yeah, it was very similar to a clearing — although clearing contract, they'll come in and blade the area and stockpile the material and just burn it. This was a salvage contract, where they actually had to move the plants off the site, off the property.

Storey: For instance, one of these nurseries had Section A. Did they have to remove all of the materials from that area?

Morton: No. They probably had to do two or three different things. One, we would go through the area, our environmental staff would go through the area and mark the plants that were to be salvaged, and then they would mark the plants that were to be stockpiled for future Federal use. And then all of the remaining plants could be destroyed, and we did that in conjunction with the State Department of Agriculture and Horticulture. Their inspector and our inspector toured the property together and reached agreement on which plants were too large or too diseased to try to salvage, which plants were adequate for salvage, and then, of course, we were on the lookout for the best of the lot for stockpiling for our use.

So that's what we would do. We would go through and we'd mark them with colored streamers, tape, to indicate whether they were to be stockpiled for Federal use or were available for the contractor to salvage and take away.

Storey: Who recovered the plants that were identified for Federal use? Was that the nursery or was that Reclamation?

Morton: No, the nursery, as part of their contract, they were responsible to — we usually identified maybe like a hundred in each of the contract, a hundred barrel cactus, a hundred saguaro, a hundred ocotillo, fifty or a hundred Palo Verde. Whatever species we thought we could reasonably use for landscaping purposes, we'd identify those. And then the nursery contractor, he'd come in. In the case of like a Palo Verde tree or mesquite tree, he'd put them in boxes, in containers. They'd have to be containerized. Some of the cactus species, they'd basically create a cactus garden. They'd have to bring in select material and create a plot on Federal land. We'd put a fence around it, and he'd just replant them, like a bare root operation. He'd pull them out of the ground one place, dig them out in one place and replant them in another place, and that would be our stockpile for future landscaping.

Storey: Now, was this for use out at New Waddell?

Morton: The ones we're talking about at New Waddell were used at New Waddell, but nearly every place that we constructed a facility, like a pumping plant, we've landscaped all the pumping plants with native vegetation. So the plants that were within the area that needed to be cleared for construction purposes, we would salvage the best of what was there at that site and then eventually replant them for landscaping.

Storey: So the nursery really had two parts to its bid, I guess. One part was, I've got to relocate X

number of plants. On top of that, what can I bid to pay the government for what I get out of this?

Morton: Correct.

Storey: Interesting.

Morton: And then that would be deducted from his net bid. We'd arrive at the net bid, and we'd select the lowest net bid. So he had to have some, the bidder, the contractor, had to have some understanding of what it cost him to actually salvage and then what he could hope to gain from resale of the ones that he was allowed to keep. And, you know, most of them went out to the site and very painstakingly checked out everything that was there, because some of the plants were relatively inaccessible. They were on a steep slope or down in the bottom of a wash, and there just wasn't much — it was more trouble that it was worth, probably, to get to some of the plants that we were requiring them to remove, just because of the terrain and distance from the road and things like that.

Storey: You mentioned, I think, four species that are covered. Do you remember any others?

Morton: I can't remember them all. Ocotillo was one, barrels, saguaros, Palo Verde, I think we had a few mesquite, cat claw, prickly pear. I think in the upper reaches of the reservoir we had some prickly pear. It usually doesn't get down to this elevation, but my recollection is there were a few prickly pear. There's probably a dozen native plant species that are protected under state law, not all of which are endemic to the New Waddell area and not all of which are endemic to the area of CAP construction. But those that were

identified that were in some abundance — and there are a lot of saguaro cactuses out in the Waddell area, there were a lot, still are a lot. We salvaged a lot, too.

Initially, I think, we probably made a mistake in that we cleared the area where the footprint of the new dam was going to be, and while we salvaged a number of cactus from that area, the public observed the clearing process, which was the third stage of the contract, where those that were too large or too inaccessible to reasonably remove, that both the state and the Federal Government agreed on, then the contractor would cut those down with chain saws. The public observed that, so there was a major outcry about desecrating protected plant species. To overcome a lot of the editorial and public perception, we had a real major public information campaign that we had to broadcast widely throughout the area to gain the confidence of the public again. We should have done that first, but we didn't realize the public outcry that was going to result.

Storey: I take it this is an environmental law.

Morton: Yes.

Storey: Are there other unique Arizona laws in the environmental arena that Reclamation had to deal with?

Morton: That's about the only one that I'm familiar with. Most of the other environmental laws, whether they're state or Federal, are pretty commonplace across the United States. I mean, air quality regulations, the county and the state both have air quality regulations. When our contractor would — he'd have to have a dust abatement

Most local and state environmental requirements were fairly standard for the United States

program, and various kinds of water quality programs, NPDS permit, and had to provide for spill protection from petroleum products, but that's pretty standard. I think that the native plant law in Arizona is probably unique to Arizona.

Storey: Well, this brings me to the next question and leads beautifully into it, because I want to talk about the complex of environmental laws. Your career started maybe two or three years before, I think it was the Wild and Scenic Rivers Act was passed, and that was the first major environmental law, as I recall, in a big complex of things — the National Historic Preservation Act, National Environmental Policy Act, the Clean Water Act, the Clean Air, Endangered Species Act, and so on. And so your career has sort of spanned the period of implementation.

If you would, I'd like you to go back and sort of try to reconstruct in your mind the way those affected Reclamation and the way Reclamation reacted to them and how Reclamation's reactions changed over time, if they did. [Laughter] I don't want to put any words in your mouth.

Morton: Well, before the body of law that you just described came into being, I really wasn't all that cognizant of the environment in the context in which we're talking about. I recreated in the outdoors. I hunted and fished and camped and all the rest of that kind of stuff. But it was no impression on my mind about the protection and future use and protection for future generations. I was a user of the environment, and I really didn't anticipate that there was a need to protect it because I thought it was always going to be there.

Certainly as my involvement with Reclamation continued over time and the laws

*National environmental
laws and how
Reclamation adjusted to
them*

came into being and my thought process matured somewhat, I think, the protection of the environment became a real cornerstone, both for Reclamation and for me. I think it was probably in the mid-seventies when I had the opportunity to work on a day-to-day basis with professionals in the field, in the environmental field, whether they be archaeologists or soil scientists or biologists or wildlife specialists. Just the day-to-day contact made me realize that my treatment of the environment in the past was probably in error and that we needed these protections and we needed to consider in the decisions that were being made within Reclamation all aspects of the environment in our decision-making process.

I think that Reclamation as a whole was slow to respond to that ethic. I think that there were a number of people who worked for Reclamation who realized that we needed to implement that ethic. But our procedures really didn't — we didn't step out in front, in the forefront to the Federal Government in any attempt to develop procedures and regulations that would allow full consideration to environmental protection and environmental enhancement in what we were doing.

The issue of environmental enhancement for most Reclamation staff people up until the eighties was probably the perspective that was prevalent in the fifties and sixties. The environment was improving opportunities for fishing or improving opportunities for hunting — for people, make things easier on the hunter, make more game or more fish available to the hunter or fisherman, not the protection of the species or protection of their habitats to allow the species to thrive on their own. It was, we need to build more fish hatcheries, or we need to build more access roads, or we need to build boat-launching ramps

so the fisherman has an easier time getting in to fish, rather than enhancing the natural environment and improving the quality of the habitat for the fish that are already there.

The introduction of non-native species has been a big issue here in Arizona. Even the greatest detractors to Reclamation's program historically have been one of the biggest introducers of non-native species in Arizona. The Fish and Wildlife Service and the Arizona Game and Fish Department have traditionally brought many non-native species that, in turn, have destroyed, extirpated native species within Arizona. And that's probably a dichotomy in their perspective organizations, but it's just a fact of life, and it's not just in Arizona. Along the entire stretch of the Lower Colorado River non-native species, like the striped bass, have been introduced for sports fishery purposes, and, in turn, extirpated, or certainly resulted in a number of native fish being killed off or habitats being lost to these introduced species.

It took us, as an agency, I would think, a good fifteen years to come to grips with, for example, the NEPA, the National Environmental Policy Act. We floundered around. I think we discussed this earlier. We floundered around for a number of years on what constituted an EIS [Environmental Impact Statement], and was it a two-page document or was it a Webster's dictionary.

Storey: Unabridged dictionary.

Morton: Unabridged dictionary. What was its purpose? Is its purpose merely to meet the mandates of law, or is its purpose really to provide information, to inform a decision-maker and allow better

Introduction of non-native species as an issue on CAP

decisions to be made, allow the public to participate in the process. I think the latter was the intent, and I think that's the way we use it now, but I think it was 1985 or later before that attitude became prevalent within Reclamation.

I suspect there are still enclaves that would like to do away with the Endangered Species Act, do away with the Clean Air and the Clean Water Act, do away with NEPA, and go back to the way it was in the early sixties. Well, I don't think we'll do that. I think that the laws speak for themselves, and the attitude of the public and the attitude of people who now come to work in the Federal Government becomes the preponderant attitude within the agency, and I think that there is good support for the body of environmental laws that exist today.

Storey: How did these affect Reclamation's business?

Morton: Well, I guess we can only point to the controversies that surround almost all Reclamation projects that have been tried to be implemented in the last twenty-five years, whether you're looking at a project like Animus-La Plata, that's still being questioned, or you're looking at projects that were built in the fifties and now may require their operations to be adjusted; for example, the Colorado River Storage Project and, more importantly, Glen Canyon Dam.

I think we've found that we still exist as an agency and we still have a mission to perform for the good of the people of the United States. It's just a different mission, and we've come to grips with that and I think we're moving forward within the context of the environmental law.

Storey: What about specific examples? You've already mentioned, for instance, eagles at Cliff Dam and

*How environmental
legislation affects
Reclamation*

that that caused some issues, and you've already mentioned the scrubbers at the Navajo Powerplant. But the literature I read preparing for this seemed to indicate that we did something — well, I guess I should say that a consortium did something unusual with the scrubbers at Navajo and that at first we were being pushed to do a job that would have been more costly, less effective, and so on. Could you comment on that and my misconceptions about it?

Morton: I guess most environmental conflicts enter into some kind of conflict resolution stage, and certainly the Navajo situation is a good example. The commitment that was made in the early seventies, when the approvals were granted for the establishment of the Navajo generating plant and associated transmission lines, was that if air quality became an issue in the future, the participants would examine the situation in light of the science that existed at that time and would agree to comply with whatever requirements were placed.

*Navajo Generating Station
and environmental
impacts*

Storey: And where did we make those commitments?

Morton: They were part of the permitting requirements to site the plant. I mean, this plant was sited on Federal land. The plant uses Federal water from the Colorado River. There were various rights-of-way agreements for crossing Federal land, both with the transmission lines and with the railroad that brings the coal to the plant. So there were just a number of permitting requirements that had to take place, and it wasn't just one agency. The Fish and Wildlife Service was involved, the Forest Service was involved, the Department of Interior was involved, the Bureau of Indian Affairs.

We were kind of on the other side. We were part of the generating station process, but our sister agencies were permitting the generating station process, and the original concept was one that they would not adversely affect quality for the region. I think it was probably one of the more telling situations, where the tightening of air quality regulations within national parks and within wilderness areas that probably set in motion the imposition or the requirement to put scrubbers on the stacks at the Navajo generating station. Certainly the Wilderness Act and the restrictions on Class 1 airsheds placed the responsibility —

END OF SIDE 1, TAPE 1. SEPTEMBER 6, 1996.

BEGINNING OF SIDE 2, TAPE 1. SEPTEMBER 6, 1996.

Morton: Placed the responsibility on the Navajo operator to improve the output of the plant with regard to air quality emissions.

I guess the controversy was in "how much" more than anything else. The controversy focused on how much do we owe, how much do we contribute to the load, the air quality load, in terms of the emissions from Navajo, and how much do we have to improve it. You look at other plants in the West. You look at plants in the Eastern United States, the same type of coal-fired generating plant. Arizona, the Navajo generating station was using a relatively low-sulfur coal, and in comparison to other plants around the whole of the United States, was probably one of the cleanest plants. But it still did produce some measurable contamination in terms of emissions.

And then the question became, "Well, whose science do we use? Do we use EPA's science, do we use the National Park Service's science, or do we use the Navajo generating

operator's science?" That's what it kind of boiled down to, was litigation over whose science you were going to believe, and not only with regard to emissions and what the constituents of the emissions were and how many days per year or hours per day that those emissions caused visibility problems or caused health problems.

I think the bottom line was, they concluded that it didn't cause any health problems. The issue became one of visibility. So each of the entities involved in the controversy had their own experts, their own meteorologists, their own emission control specialists, etc., that were arguing before the court, and the bottom line is that it really was not productive. The bottom line was that the operator was going to be saddled with a much more rigorous emission control strategy than was necessitated by the physical facts of what the emissions produced in the way of an effect.

I think that eventually they came to that realization and they sat down and tried alternative forms of conflict resolution. They ended up with a mediation process. The mediation process pretty much eliminated the scientific controversy and said, "You've agreed to do something to improve the airshed quality. We need to find out what that is. Is it a billion dollar program, is it a twenty billion dollar program, or is it a half a billion dollar program? What can we do?"

When they sat down at the table and began to mediate what was going to be done rather than trying to argue over what the effects were, they got to closure rather quickly. Both parties agreed that a certain level of emission reduction would satisfy both parties' concerns, and if those costs were in a certain range where the consortium of ownership could still financially operate the plant, the plant was still a financially feasible operation, that was acceptable to both parties. And that's

basically how the situation evolved, and a stipulated settlement was entered into and the court embraced that and we got away from a five- or ten-year battle in the court system. I mean, it was kind of a win-win situation. The environment came out a winner, and the operators of the Navajo plant came out a winner, because even though they had to make a major capital investment approaching \$600 million, it was not too burdensome a commitment that they had to walk away from the plant.

In other words, if it had been a \$2 billion solution, financially they would have walked away from the plant, and they would have been the loser and the plant would cease to exist. The economy would have lost. There would have been other sources of generation located other places in the West to offset the loss of that plant. The power user, through the rate structure, would be a loser. And I don't know that there would have been all of that much improvement in the quality of the airshed in the Grand Canyon. I mean, the bottom line is, I think they've proven pretty much that most of the particulate matter in the Grand Canyon comes from sources other than the Navajo generation station.

Storey: Were there any specific endangered species problems that Reclamation had to deal with?

Endangered species issues and CAP

Morton: Well, there were a couple of specific ones. Today over the past — I think the Endangered Species Act was passed in '73, if my recollection is right — twenty-three years, on the Central Arizona Project we've consulted with the Fish and Wildlife Service about fifty times on various endangered species issues related to construction and operation of various Central Arizona Project facilities. Out of that fifty separate consultations,

I think that we have six or seven that resulted in jeopardy opinions; and all of those, all of those jeopardy opinions, were offset by reasonable and prudent alternatives that Reclamation adopted that eliminated the jeopardy to the species or their critical habitats.

So from a practical sense, there's probably a few others in that fifty consultations that, prior to consultation with the Service, on the advice and guidance of our own staff, we concluded that by making relatively minor changes in the plan, we could eliminate the jeopardy within the plan. So we basically volunteered those to the Service in our biological assessment, and the Service agreed with us that we were not jeopardizing any species. So there were a couple of them that we invested a small sum of money in modifying the basic plan.

I think a good example would be the Salt River siphon, which crossed a marshy area, a wetland, that was — the Yuma Clapper Rail, it was good quality Yuma Clapper Rail habitat, and by avoidance of that area, by just staying out of that area and moving the siphon itself several hundred feet downstream, we avoided the area. We had a little longer length pipe, I don't know, probably on the order of seventy or eighty feet longer length of pipe, so there was some additional associated cost with moving it. But we avoided any jeopardy to the wetland habitat that the Yuma Clapper Rail may or may not actually use, but it was habitat and we didn't want to infringe on that habitat. So we did a relatively minor relocation of the facility, and, in turn, concluded that we did not jeopardize, and the Service agreed with us on that.

So there's several times in that fifty separate consultations where, even prior to the Service acknowledging a jeopardy or directing a jeopardy opinion, through internal modifications

we were able to forestall or not receive a jeopardy opinion. But there are seven, I believe, separate jeopardy opinions, and all of those have been eliminated through reasonable and prudent alternatives. Now, some of those reasonable and prudent alternatives are fairly expensive propositions. We have a situation on the Bald Eagle. We've consulted, I think, three of those seven times have been for the Bald Eagle. We've combined one consultation on the Plan 6 facilities. Roosevelt, New Waddell, Cliff, Horseshoe, and Bartlett were later brought into that consultation in a supplement. The research program, the protection program, that was adopted that Reclamation has paid for probably is in the order of \$8 or \$9 million. So it was a costly process.

We have a consultation on native fish or the operation of CAP within the Gila River Basin. The present value estimate on the reasonable and prudents right now today is about \$13 million for implementing various strategies, monitoring eradication of non-native fish if they get out of the canal, research, public information, public education, construction of two fish barrier dams on the San Pedro River, construction of two fish barrier dams on the Air Vipa Creek [phonetic]. So that whole package of long-term, long term like twenty-five years of monitoring, eradication, research, etc., that's about \$13 million in present value today.

We've just concluded a consultation with the Service on the Southwest Willow Flycatcher. That was for the operation of the Roosevelt Reservoir. The Southwest Willow Flycatcher is a relatively new endangered species. I think it was first listed in 1995. We were 90 percent complete on the modifications of Roosevelt when we found we had an endangered species that nested in the new reservoir area, and the operation of the new

conservation pool would adversely affect that species' habitat.

We've committed to a four-part reasonable and prudent effort in that regard, expansion of the habitat of the Southwest Willow Flycatcher. We're going to be purchasing some land. I shouldn't say we are. We are going to contract with the Nature Conservancy. The Nature Conservancy is going to purchase a preserve on the San Pedro River, and we will pay the Nature Conservancy to improve the habitat in that preserve and protect it in perpetuity.

We will also have a research program. We also will have a program to eliminate predators to the Southwest Willow Flycatcher. The Cowbird is a predator species to the Southwest Willow Flycatcher, and we'll have a Cowbird control and eradication program. So those activities probably, a current estimate I think is probably around \$4 to \$5 million of additional cost to implement that program. In each instance, as I said, about seven, I think it is now, instances where we have adopted reasonable and prudent alternatives, most of which resulted in additional cost, upwards of \$5 to \$15 million per consultation. So probably on average, we spent maybe \$50 million under the Section 7 procedures of the Endangered Species Act to eliminate jeopardy to species.

Storey: I take it the native species was the Gila Top Minnow that you were talking about.

Morton: There were four, the Gila Top Minnow being one. We had a separate consultation on the Gila Top Minnow. There's a creek that flows into the new reservoir at Waddell, a creek by the name of Tule. It's a perennial creek. The Top Minnow is in a small pond, I don't know, about three miles upstream, and the concern, of course, was that as

the water rises within the reservoir and the new Lake Pleasant during the winter months, when we're filling the reservoir with Colorado River water, non-native fish can move upstream and get into the headwaters of Tule Creek, where the Top Minnow is resident, and then destroy the Top Minnow and refuge that exists there. So we have built a ten-foot barrier dam in the channel, hand placed barrier structure that would preclude upstream migration of any non-native species and, in turn, protect the habitat.

That was a specific instance that was relatively inexpensive. I think that the actual construction of that barrier dam in that small canyon was a pretty expensive proposition of and by itself when you consider what was involved, but the bottom line was, it's very inexpensive in the overall big picture scheme of things. I think probably a \$100,000 total that we spent on that, and it was a very expensive proposition because the materials had to be hauled in. I don't think we got right down to using a pack train, but you couldn't bring in any heavy equipment. The canyon was too steep. You just had to hand place everything. From a construction perspective, it was a pretty extensive operation, but from the big picture of what is it's effect on the financial situation within CAP, is relatively small.

Storey: Did any of these consultations involve a lot of public controversy?

Morton: Well, the Bald Eagle was probably the singular most controversial, I think, in that the opposition to CAP grabbed hold of it as a symbol and said, "You're destroying the Bald Eagle in Arizona." At the time that we were debating Orme Dam or a suitable alternative in the late seventies, we only knew about five nesting pairs of Bald Eagles, and

they were all in the confluence of the Salt and Verde River.

Now we've conducted a lot of research as part of the Central Arizona Project, and we know that there's more than forty nesting habitats, and we've identified roughly sixty nesting pairs of Bald Eagles. So the body of information has expanded substantially, and I think that while it was very controversial and there was a major public outcry and there were national newspaper articles being written about the Central Arizona Project destroying the last remnant habitats of the Bald Eagle, today, because of the research efforts and infusion of capital to protect the Bald Eagle, it's well on its way to recovery in the Southwest, and I personally think it's because at least the majority of what's been done has been done as part of our consultation with the Service and our efforts to not jeopardize the Bald Eagle, to eliminate that jeopardy.

Most recently, the Southwest Willow Flycatcher has become a rallying point. I'm not sure why, but it has. The efforts that we're making would appear to be reasonable, but both the preservation side of the environmental community would like to see the new reservoir not operated, to inundate the nesting trees that were used by the species, and the CAWCD and various other interests in the state are objecting to the expenditure of additional funds to protect the species or to improve its habitat or to improve its range.

So it's kind of like, no matter what we did, we were going to incur the wrath of one segment of the public or the other, and apparently what we have done is good for the species, because we're getting hit from both sides. They're both threatening to sue us. I'm not sure if either side of the controversy will actually bring a lawsuit, but

we are in agreement with the Fish and Wildlife Service. We have a good working relationship with the Nature Conservancy. Most of the area that's being impacted is within the Tonto National Forest. The Forest Service biologists seem to be happy with the solution that's been worked out between Reclamation and the Fish and Wildlife Service. The professional community seems to support what we've committed to under the reasonable and prudent alternatives. So we'll move ahead, and we'll see what happens. We may get sued by some of the developmental interests or the repayment entity, and we may get sued by some of the preservation organizations, I don't know.

Storey: What about enhancement activities? Have we done a lot of that kind of thing?

Morton: Been really limited in the enhancement, and I think it goes back originally to the concepts of enhancement that were prevalent at the time the project was authorized. As I said earlier, enhancement within Reclamation, within the Fish and Wildlife Service, at that time meant you built fish hatcheries, you bought land and created wildlife refuges, you provided for the physical comforts of the fishermen and hunters. You provided forage areas for waterfowl.

That concept is no longer the concept that the Fish and Wildlife Service uses. The concept, rather than being one of economic benefit, it's one of species or habitat benefits, and the measurement of those benefits is done in habitat units or in species diversity units or in species composition units. So we've had to reorient our thinking and reorient our efforts within the context of what was authorized.

*How concepts of
environmental
enhancement changed
over the years*

What was authorized in CAP were fish and wildlife enhancement facilities at each of the reservoirs, to the tune of several hundred thousand dollars at that time, 1968 dollars, \$400,000 or \$500,000 per reservoir, and a general enhancement that involved refuges to the tune of about \$5 million. So the authority that emanates from that, I think it's about almost \$7 million of appropriation authority for fish and wildlife enhancement purposes.

Where we can identify needs for enhancement that are directly related to the area that would have been affected by the authorized dams, that's been the tie-in to-date for doing other types of environmental enhancement, and I'll just give you one example that we're now working on somewhat diligently.

The Charleston Dam — we talked about the Charleston Dam earlier — was authorized on the San Pedro River, and one of its authorized purposes was fish and wildlife enhancement. When we decided not to build Charleston Dam but rather to provide its principal component of water conservation or water development through an enlargement and extension of the Tucson Aqueduct and convey that water to Tucson, Colorado River water to Tucson rather than San Pedro River water, the responsibility to provide some measure of fish and wildlife enhancement didn't disappear. There was no attempt in the eighties to implement a feature or an activity related to fish and wildlife enhancement. It entirely focused on transferral of the water development objective to a different facility, and most of the appropriation ceiling, in turn, was used to offset the additional cost of the Tucson Aqueduct, since we were making it bigger and extending it thirty or forty miles farther south.

*Environmental work on
the San Pedro River*

We've concluded that, based on the original authorization, we probably have about two and a half to three million dollars of appropriation authority for fish and wildlife purposes for the San Pedro Basin, and what has happened in the San Pedro Basin over the last thirty years is that a national riparian area has been established by the Bureau of Land Management. This riparian area extends from the vicinity of the Charleston damsite on the south, downstream about almost, I think it's pretty close to sixty miles, to the vicinity of Benson, and the objectives of that riparian area are a bird sanctuary and other wildlife purposes.

Well, at the upstream end, Sierra Vista and Fort Huachuca are located, and the Army, of course, is doing big things at Fort Huachuca, and Sierra Vista has become not only a service area to the Army post, but has also become a major retirement community in the southeastern part of Arizona. What we are trying to do is work with the city of Sierra Vista to develop a wetland and develop a recharge program for its current wastewater processes. Rather than take the water out of the basin or not let the water recharge into the San Pedro River, we're working with the city of Sierra Vista and the Arizona Water Protection Fund to take the sewage effluent from Sierra Vista, polish it in a wetland, and then recharge it to protect the degradation that's ongoing within the riparian area, the dewatering of the riparian area within the stream channel as the uses and the groundwater overdraft continues to occur in that general area. We're trying to offset this by recharging Sierra Vista's effluent.

This is a program we're engaged in, and we're committed to about \$1.8 million to further that effort. It's a cost-shared effort. I think about three and a half million dollars is going in, as well

as 100 percent of the operation and maintenance of the plant in the wetland, is being picked up by either Sierra Vista or the state of Arizona. So we view that as a furtherance of our responsibility —

END OF SIDE 2, TAPE 1. SEPTEMBER 6, 1996.

BEGINNING OF SIDE 1, TAPE 2. SEPTEMBER 6, 1996.

Storey: This is tape two of an interview by Brit Storey with Larry Morton on September 6, 1996.

Morton: It isn't exactly the program that was envisioned in 1968 for enhancing fish and wildlife opportunities at Charleston Reservoir, but it fulfills the changed objectives and the changed mission that we've seen over the past thirty years in regard to enhancing fish and wildlife values.

Storey: Is Cienega Santa Clara an environmental project that Reclamation was involved in?

*Cienega Santa Clara and
CAP*

Morton: You're talking about the Cienega at the southern end of the Colorado River?

Storey: Do I know? All I know is, I read somewhere there is a Cienega Santa Clara.

Morton: I think that Cienega is an area that is immediately upstream of the Gulf of California and is in the delta of the Colorado River. It's been cut off, as I understand it, it's been cut off from the return flows that would be going down the Colorado River and is part of the Yuma Desalting Plant. Some of the flows that formerly were in the Colorado River would be bypassed and, in turn, the Cienega would receive less and less inflow of water. So it has been damaged, or will be damaged, over time as the result of, one, the operation of the Colorado River system, and, two,

the operation of the Yuma Desalting Plant to meet the Mexican treaty obligations.

It's not an issue that we here in Phoenix have been intimately involved in. It arose several years ago at the time the diversions for CAP started increasing, and the concern that was being expressed was, "Well, CAP's taking more water off of the Colorado River. More water is being used in the three states of the Lower Division. That must mean that less water is going to Mexico. And if less water is going to Mexico, that means that the Cienega is being damaged by CAP diversions. So it's CAP's fault that the Cienega is drying up."

Now, that was the logic that went into various peoples' attempt to improve the quality of water in the Cienega, or improve the amount of water that flowed into the Cienega. What we pointed out to them was that CAP did not govern how much water was delivered to Mexico or how much water flowed across the border and naturally flowed to the Cienega. That was a measure of the treaty, and what the treaty says is how we operate the river.

Now, obviously, as CAP uses water over a long period of time, as well as all the other Lower Basin states continue to use water over long periods of time, the frequency and magnitude of spills from the Colorado River system of dams will be adversely affected, just because there's more beneficial consumptive use being made of the natural flow of the river. The reservoirs will not be as full as frequently, and when they are full, the magnitude of the spills from the reservoirs would be less than might be the case if less than seven and a half million acre-feet was being consumed in the Lower Basin. So, yeah, no doubt about it, but CAP's no more of the cause of that than Imperial Irrigation District or Metropolitan

Water District of Southern California or the uses that are made in the Los Vegas Basin by the state of Nevada.

Nonetheless, because it was an environmental issue, various individuals and organizations suggested that CAP could contribute to rectifying the problem by perhaps buying some water or releasing some water that was Arizona's entitlement that Arizona wasn't using, and therefore freshen the flows that would naturally recruit to the Cienega. We examined those proposals and found that, one, they were inconsistent with the treaty with Mexico, so there was an international situation that the State Department would have to deal with; two, Arizona's remaining entitlement to Colorado River water could not be unilaterally transferred by the Department of Interior to the government of Mexico. That would be a direct violation of the long-standing law of the river; and three, for us to buy water, we would have to find somebody willing to create a benefit for a natural habitat that occurred in the sovereign country of Mexico, and nobody was willing to pay American dollars to improve the quality of habitat in Mexico that, in the opinion of some, was degraded because farmers in Mexico were pumping water out from under the Cienega, and didn't have anything to do with Colorado River flows. So there was a major backlash, if you will, by people in Arizona that suggested the Federal Government or the state government should be paying for adverse environmental impacts that were being brought by development within the country of Mexico.

Storey: When was this going on?

Morton: This was at the front end of the negotiations with the state of Arizona concerning CAP financial

situation. That would have been January, February, March of '94. It was part of some of the earlier discussions by the Governor's Advisory Committee on, what do we do with Arizona's remaining entitlement, and representation from the environmental community, I think American Rivers, Nature Conservancy, Sierra Club, Audubon Society, they either had representation on the governor's commission, or they were certainly public observers at the activities the governor's commission was going forward with.

They proposed it as a method to, one, start using some of CAP's entitlement, and, two, get some environmental enhancement. There were a number of proposals that were put forward, because at least some of these representative organizations felt like Reclamation and the state of Arizona had not fulfilled the direction of Congress in 1968 to provide for fish and wildlife and environmental enhancement measures. So one of the areas of immediate focus was, what can we do along the Colorado River, because obviously if you weren't diverting it into central Arizona, the cost of that diversion could not be levied against a water supply that might be used for environmental purposes along the river.

So where we were talking earlier about the \$80 water in central Arizona, the conclusion at that time was, "Well, this would be free if we could just increase the releases from Lake Mead and make several hundred thousand acre-foot of over-deliveries to Mexico. That would be an environmental benefit being produced by CAP water." But as I said, it would, I don't know if it would be in violation, but it would be inconsistent with the treaty with Mexico. It would violate the law of the river, and there was no support in Arizona for letting their water run down the river.

We also examined improving habitat within Arizona and California and along the river, putting some backwaters in, various other enhancement measures that could contribute to the overall well-being of both habitat and fish and avian species along the Colorado River. As you may know, most of the stretch of the river is controlled by one Federal agency or another. There's refuges, there's National Park Service lands, there's Bureau of Land Management lands, there's Bureau of Indian Affairs. Various Indian reservations border the river, both in Arizona and in California. So there's a lot of Federal involvement up and down the river, and each agency has its own program and probably a little different management philosophy.

When the call went out to say, "What would you like to see happen on, for example, the Cibola National Wildlife Refuge or what would you like to see happen on the Havasu Wildlife Refuge or what can we do to improve environmental conditions in the Lake Mead National Recreation Area downstream of Hoover Dam?" We had some rather large meetings of Federal land management people and wildlife people and generally concluded that each had their own program, and additional water from CAP wouldn't do a whole lot to further their program. They had water rights or they had other management schemes for their lands that abutted the river, and there wasn't a whole lot that could be done within the context of CAP to further the environmental enhancement measures.

Storey: Tell me about the Regional Environmental Officers and how this office related to them, who they were, what their management approach was, and that kind of thing.

*Environmental officers in
the Lower Colorado
Region*

Morton: Well, to the best of my recollection, the first Regional Environmental Officer was Al Jonez. He came to Reclamation from the Park Service, and he had been a wildlife manager within the duty station in Boulder City, Nevada, at the Lake Mead National Recreation Area. I'd have to say Al was probably a developmental biologist by training. His interest was, catch more fish within Lake Mead or within Lake Mohave. But he kind of set the stage, and eventually, I guess, went back to Washington and helped develop the policies and procedures that are now in place within Reclamation for the NEPA process.

Phil Sharp followed Al. If I remember right, Phil came to us from the Fish and Wildlife Service. He had a different perspective in that his developmental philosophy was not geared to economics, but rather to species improvement. I probably worked closer with Phil than any, because the time span I worked in environment was also concurrent with Phil's tenure in Boulder City. Phil went on to become an Assistant Regional Director, and now is in private practice in California. I see Phil once or twice a year at the various conclaves that we both attend.

I learned a lot from Phil on wildlife species and habitat needs and just general wildlife biology that I suppose are well known to people now, but when you're an engineering student and you dedicate your life generally to engineering, you don't get into some of the biological sciences. So I learned a lot of basic biology from Phil. And like I said, he broadened his perspective and became a Reclamation manager and moved up to an Assistant Regional Director's slot.

I'm trying to remember. After Phil, I think was Ken Trumpeter and then Bill Renne [phonetic]. I think we've only had four Environmental Officers, to the best of my

recollection. Ken was a force fit, I think I'd have to say. He came out of the Office of Saline Water and came to work for Reclamation on the Yuma Desalting Plant; and then when the job was pretty well completed there, because of his scientific background more so than any natural environmental background, he qualified for the position. I don't know that they had run a RIF, but it was basically a force fit that he was offered the job as a directed reassignment, because his position in Yuma had basically, the work had basically been completed. He filled the job for a couple of years there in Boulder City.

Ken, like I said, didn't have the natural resources background that Al or Phil had, but he had lived with regulations and procedures, and so he was good from that perspective. He brought a perspective of regulatory compliance, and it was probably at a time when we needed it, because we were in a regulatory disagreement with the Corps of Engineers over the 404 permit for New Waddell Dam. He brought a body of knowledge to that controversy and really assisted us in securing the permit, more so from the regulatory side than from the natural resource side.

Bill Renne succeeded Ken. Bill was a longtime fishery biologist. He and his brother are well known in Arizona. His brother works for the Forest Service at the research station in Flagstaff. They're both very knowledgeable members of various professional societies in the fishery end of the business, Desert Fishes Council and National Fishery Association, first-name basis with most of the state directors of wildlife or state directors of fish and wildlife, both hold memberships in that professional society, as well. He'd see most everybody as primarily from a biological background that served in those positions.

Bill has given us a lot of insight. He was very intimately involved in our endangered species consultation on native fish here in central Arizona in the Gila Basin. He brought a lot of credibility to our negotiations with the Fish and Wildlife Service. I think that his principal professor when he was in graduate school was the Service's expert, and I think that the two of them tended to moderate the controversy somewhat, just because they could talk to one another. I think we admirably resolved that controversy on what we were going to implement in the way of RMPs. But that was a two and a half year conflict that we endured.

I don't know what I can say. They each brought some baggage with them. They each brought some good qualities, and I think they certainly furthered the program here in the Lower [Colorado] Region. Generally, I guess Phoenix and the Arizona Projects Office and the Phoenix Area Office, we've been pretty much left to our own devices, except when we had a problem, when we raised our hand, the Regional Environmental Officer was there and he was prepared to help us. Phil Sharp worked very closely with us on the original water allocations. He served as an expert witness in our lawsuit in *Babbitt versus Andrus, Arizona versus Andrus* in the original Indian allocation. So I guess I'd have to say they jumped in when there was a big problem that we couldn't handle ourselves, and the run-of-the-mill things, they left us alone and let us do our job, and I appreciated that.

Storey: What about cultural resources activities?

*Cultural resources and
CAP*

Morton: Well, we've been fortunate here at the project in that we've been able to staff our own activities in that arena, and whether it was in-house expertise

in the early seventies or it was contract expertise in the late seventies and throughout the eighties, I think we've been very fortunate with the people we've had on board.

Our first "environmental hire" was Gene Rogge. Dr. Rogge is an archeologist. He's in private practice today. But Gene kind of set the tenor for how we would proceed in dealing with archeology on a project. At that time, I think Jim Maxon was the regional archeologist. Ward Weakly was the Bureau archeologist in Denver at that time. The three of them formed the cornerstone, I think, of Reclamation's archeology efforts in the early seventies. They guided us in our planning process with the Advisory Council [on Historic Preservation]. We entered into a programmatic agreement with the Advisory Council, I think, in '75 on how we'd deal with cultural resources within the CAP service area and the construction area. We've had good working relationships with the State Historic Preservation Officer, and we've been fortunate enough to be able to hire three to five professionals over time. I think we're down to two, maybe three now. But over the time when we had a big workload, we had up to five professional archaeologists on staff.

Most of the physical work of survey and identification and mitigation planning, and ultimately mitigation has been contracted out. I suspect that the professionals that we have on our staff will become contracting specialists. That's not what they want to do. Most of them would rather be out in the field and researching, doing surveys. But we don't have that luxury, generally, so we do contract the work out, and they, in turn, become contract monitors and have to deal with the paperwork and the money and read the reports and review the reports.

I think we're getting into an area now of curation and repositories that many people like — the museum artifact aspect of what we're doing; the research aspect; long-term curation of historic and archaeological properties; the public education side that's produced a number of documents, both for the professional community and public education. We're getting a lot of controversy now about the level of expenditure. The 1 percent limitation — we've requested a waiver from the 1 percent limitation. We haven't received a favorable response yet from the Commissioner's office on that issue. When we get to actually building the principal works of the Indian distribution system, because of where they're located, we will exceed the 1 percent. And then there's a question about, what is our authority and whether or not we're going to be allowed to do that. That's an issue for another day, I guess, after I'm gone.

Storey: After you're gone, huh? You mentioned the Corps and the 404 permits. How are our relations with the Corps as regards Central Arizona Project?

*The Corps of Engineers
and CAP*

Morton: Early on, of course, most of Arizona was under what they call a general permit classification and there, for all practical purposes, was no real problem. We'd file an application, and it would come back two weeks later with no provisions attached to it and approved.

More recently, the Corps has reclassified the waters of the United States, expanded their classification to include a number of what I would consider to be ephemeral streams, and it's become more difficult to get a permit from the Corps. Fortunately, we did most of our construction before we got into that situation.

A recent case would be the reconstruction of the Salt River siphon. The Salt River siphon lies downstream of Granite Reef Diversion Dam. The normal flow of the Salt and Verde Rivers is diverted at the Granite Reef Diversion Dam, and it's a dry channel downstream. But it's still waters of the United States by the Corps' definition, and the individual that runs our permitting operation out of the Los Angeles District took a real interest in the reconstruction of the Salt River siphon.

We had about 300 feet of channel to excavate, so we were definitely in a dredge-and-fill operation, just as the material that was being dredged and the material that was being filled was the same material. We couldn't understand why you couldn't put the same material back in the trench that you just took out a couple months previous. But there were a number of restrictions, a number of protections that the Corps insisted on that we were able to agree to, but it was a much more burdensome process than it had been the first time we came through there in about 1976, '75, '76, with the same type of construction activity, very same thing. One instance it took like two weeks at no cost, and the second time there was substantial amount of cost involved. We had dewatering permits. We had groundwater protection permits. We had to line the ponds that the — we pumped water out of the channel. To dewater the trench, we had to put well points in and pump water out of the channel. The Corps required us to put that water, which was sediment free, into lined holding ponds to evaporate. It was the same water that was moving fifty feet downstream immediately under the ground surface. It was a high water table situation.

END OF SIDE 1, TAPE 2. FEBRUARY 6, 1996.

BEGINNING OF SIDE 2, TAPE 2. FEBRUARY 6, 1996.

Morton: The contractor was intercepting water at about ten feet, and so for the next twenty feet of his trench, he was encountering water table. And so he wanted to put well points in, pump that water out, dewater the trench so he could work in the dry, as he fabricated the siphon pipe. We thought it would just be a case of moving the water from the upstream side of the trench, around the excavation, and put it back in the river channel.

Well, the Corps didn't make it all that simple. We had to ensure that the water didn't get back to the water course. It had to be put in a lined holding pond. I never did understand why, but we went to the expense of doing that just to make sure we got the permit.

Storey: You had mentioned *Babbitt versus Andrus* before, and I had forgotten to go back and ask you, I think. Could you tell me more about that?

***Arizona v. Andrus
(Babbitt v. Andrus) and
Indian water contracts***

Morton: I thought we'd covered that.

Storey: Did we? Maybe we did, because I know I wanted to cover it.

Morton: Well, in a nutshell, the governor at that time, Bruce Babbitt, I believe it was in 1980, he took exception to the proposed allocation of water to the Indian tribes. I believe it was in the summer of 1980 that the Secretary promulgated a water allocation decision, Secretary [Cecil] Andrus, and late in December the Secretary entered into contracts with ten of the eleven tribes, or nine of the ten tribes. All the tribes except Gila River community executed a water service contract.

Immediately, then, in January of 1981, Governor Babbitt, nominally, as the head of the state of Arizona, sued Secretary Andrus. So there was a lawsuit that went down the line and named

Secretary Andrus and named the Commissioner of Reclamation, named the Regional Director, named the Project Manager. Lo and behold, the fifth name on the summons was my name, because at that time I was the Environmental Officer and I was responsible for the NEPA process leading to the execution of those.

We had concluded that the NEPA process did not require an EIS, and that was the basis of the lawsuit. They didn't protest the execution of the water service contracts, although that was the intent, was to render those contracts moot, but rather they challenged the NEPA process leading up to the execution of those contracts, I think basically claimed that the United States should have prepared an environmental impact statement as opposed to the environmental assessment that was prepared. I think we called them negative determinations at that time, but maybe they were FONSI's, but a finding of no significant impact, one or the other, whatever the culminating document was at that time.

The lawsuit drug on for several months, and the court ruled, finally, that we had erred, that the United States did need to prepare an environmental impact statement with regard to the water allocation and the resulting water service contracts. However, the court did not set aside, which was the basic objective, I think, of the lawsuit was to set aside the contracts. The court ruled that the contracts were valid, but unenforceable, until the Secretary prepared an EIS.

The result was primarily a regulatory EIS, that we went ahead and prepared. We spent several hundred thousand dollars in the preparation and publication and ultimate decision. The decision came out the same way. We were going to enter into contracts, and we'd already

entered into the contracts. So now that we'd complied with the court order to prepare an EIS, the contracts became enforceable. The state won in the context that we hadn't prepared the EIS, but their underlying objective of setting aside the contracts didn't materialize, because the court did rule that the contracts were valid. The court did not void the contracts. They were determined to be valid. And for a period of a couple of years there, they were just considered unenforceable, that we couldn't deliver water under them. But we weren't prepared to deliver water under them anyhow. The bottom line is that it just resulted in a paperwork exercise to produce an environmental impact statement.

Storey: Arizona felt that too much water had been allotted to the Indians or what? Do you have a sense of that?

Morton: Yes, that was the concern. It goes back to the earlier allocation proposals that had been floated in the late seventies that were in the 257,000 acre-foot range. Secretary Andrus increased that to 310,000 acre-feet and expanded the number of tribes or tribal communities that were involved. The original allocation of 257 only involved five, and in the case — for example, in the case of the Tohono O'odham Nation, we only looked at the Chuichu District, Sifoliak District, the Chuichu, and that was an allocation for 8,000 acre-feet. Secretary Andrus came back in '80, I think it was, and allocated water to the San Xavier District and the Schuk Toak District. So there was that expansion in the case of the Tohono O'odham Nation. San Carlos Apache tribe, the Tonto Apache tribe, Camp Verde, the Pasquiackis [phonetic], those were all new entities that received an allocation from the Secretary. So

there was two concerns, the quantity of water and the expansion of the number of benefiting tribal communities that were to participate in CAP. Those were the two issues.

Storey: I think we discussed the introductory material before, but I don't think we discussed the decision. I sure don't remember it.

Morton: Well, you've got it now.

Storey: Why are you retiring? You're about fifty-five, I think.

"Why are you retiring?"

Morton: I'll be fifty-five in January. I have almost thirty-five years of government service, all with Reclamation and all here in Phoenix. I think it's just a number of factors. The job's about done. The organization is undergoing significant change.

Storey: And reduction.

Morton: Well, and I think that's what I mean by change is the reduction. The people I've worked with are leaving. Longtime associates, companions, friends are finding other things to do. And it's not just in Reclamation. Many of the people I've worked with professionally over the last thirty-five years, they're doing the same thing. Whether it's my long association with Tom Clark, the first general manager for CAP, for CAWCD, or some of the staff in the Department of Water Resources or the city of Phoenix or the city of Scottsdale, Salt River Project, we're all at that age that we're leaving. It's time for some of the young people to take over.

It's not any one thing that gives rise to retirement. You're eligible. You're in a financial situation where you can afford to do it.

Obligations to the kids have basically been satisfied. They're out doing well on their own. It'd just be good to find something else to do.

Storey: Do you have something else planned to do?

Morton: Not specifically. I think six, eight months ago, maybe as a defense more than anything else, people would say, "What are you going to do? What are you going to do?" Well, thoughts at that time were, "Maybe I'll go back to school." I have an interest in education. My wife's an educator. I could see maybe teaching or doing something along that line. I've developed an interest in history over time. I wouldn't object to maybe teaching history at the junior college or high school level, probably. But that's something to think about.

Storey: But you're not planning to go into water consulting of any sort?

Morton: No, I don't have any real desire to do that. Some of the people, my colleagues over the years, they've done that. They don't appear to be real happy doing it.

Storey: Your comments about why you were retiring — at dinner last night I was asked if you had had any relation with, I think it was the city engineer of Phoenix, longtime city engineer, man in charge of water, Hannegan I want to say.

Morton: No. Currently — let me put it to you this way. The water production people, the city engineers are generally in the water production arena, and I haven't dealt with those individuals. The people that I've been more closely allied with are the entities that advise the mayor on water policies in

the broad spectrum of water and probably assistant city managers, a fellow by the name of George Britton. I'm sure that the water engineer works within George's organization, but I worked very closely over the years with George. As a matter of fact, he was an aide to Governor Babbitt at the time the governor was here. People like Bill Chase, who, I think's title is water advisor to the mayor or water advisor to the city manager. So it tends to be more the political side rather than the technical side of the water production side of the city government that I've dealt with within the city.

Storey: Well, as far as I know, I've reached my last question, which is, what else should we talk about that I haven't been smart enough to raise or informed enough to raise?

Morton: This has really been a very exhaustive process, and I really can't think of anything that — I certainly enjoyed it, but I can't think of anything that I could add to what we've talked about over the past many hours.

Storey: Often people want to talk about Reclamation in very general terms at this stage of the interview. Are you interested in making any comments like that?

Morton: Well, about all I can say is, I've seen a major — I'm trying to think of the term — quantum shift.

General comments on Reclamation and how it has changed

Storey: Metamorphosis, maybe.

Morton: Metamorphosis. That's a good word, yes. I came to work when Commissioner [Floyd] Dominy was in his heyday, so to speak, and most recently, I've not had a lot of contact with Commissioner

Martinez, but certainly I've known Dan Beard, or knew Dan Beard, in his earlier life in the Department [of the Interior] in the late seventies and early eighties and I knew him very well when he became Commissioner. Mr. Beard and Mr. Dominy are probably the two poles of the universe, so to speak, with regard to Reclamation.

But I've enjoyed the experience. I've learned a lot. As I said, I think, at the onset of our discussions, I don't know why I went to engineering school, because I certainly have never really engineered anything. My role has been primarily one of information, information transfer, packaging information, making sure that it gets to all the right people at all the right times. But I sure didn't ever do any real hard engineering. I did more engineering, I think I told you this, did more engineering while I was still in school and working as a student trainee than I did after I received a professional degree.

Reclamation is no longer the dam builder of the world. I think we're still — we've concluded that if we're going to exist, we need to do it in terms of resource needs, in terms of operation and in terms of resource management. But I think we're still struggling with that image, and I think that's illustrated in our budget process. Fifty percent of the budget is still dedicated to construction, even though as long ago as 1987 it was concluded that we were no longer a construction organization, but yet our budget still reflects roughly 50 percent dedication to construction. We don't know what resource we're managing, I think more than anything else. There's a dire need to manage the water resources of the West, but in doing that, we have to manage the land, we have to manage the infrastructure, we have to manage the wildlife and cultural resources, and we need to do it in a manner that is

in the best interest of the people of the United States. It's going to take a few years to have that realization impressed upon the staff that works for Reclamation, but it'll happen.

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

Morton: I am, thank you.

Storey: Good. Thank you.

END SIDE 2, TAPE 2. SEPTEMBER 6, 1996.