Oral History

Bonnie Leverton (Q!):

It's May 23, 2005, and I'm Bonnie Leverton doing the interview. Bill Leverton is the photographer and your name is?

Phillip Briggs (A):

Phillip Giles Briggs.

Q: And tell me, we'll just start with the some basic background like where you were born and when you were born and stuff like that.

A: I was born in Wisconsin in 1939. We moved to Arizona by bits. Dad snow birded back and forth. He was a carpenter and there wasn't much work in the winter in Mellan, Wisconsin for a carpenter. So he came down first in '52 I think it was and then '57 or '58 we took up permanent residence. I've been here ever since.

Q: Tell me your education and how you ended up doing what you're doing.

A: Dad was a carpenter, had an eighth grade education, and had to go to work on a farm, depression. He was a great believer in education and he wanted me to go to college and as a high school kid and he couldn't convince me of the wisdom of that and of course, there wasn't any money to send me anyhow. And I spent one summer down here farming. I figured, you know, I don't want to do this when I'm old. So I worked my way through college carpentering, which gave me an advantage in that I could make quite a bit of money and work fewer hours at much more high wages then flipping burgers.

Q: Where did you go to school?

A: ASU. Arizona State Teacher's College at the time, it was the Arizona State College at Tempe I think it was. They changed the name in '58. And I ended up in

Engineering because it was like carpentering. Build things. Design things. Build things. And that was during the Vietnam War and to maintain my deferral, I went on and got a Master's Degree. And I didn't know what I wanted to do so I took structures and traffic and a lot of water resource courses.

Q: Why water resources?

A: It seemed to be interesting. Seemed like...outdoorsy sort of thing. Civil engineers… Civil engineers tend to be like geologists, you know, kind of Levi's and outdoor oriented. Chemical engineers and nuclear engineers are a whole other stripe, different kind of people, seemed like. And then I had, and so all of the grand design of this is one of my classmates graduated, I think the year before I finished up, and he had a part-time job with the U.S. Geological Survey in downtown Phoenix, Water Resources Division and wanted to know if I would be interested. I said, "Sure, why not," and went down and talked to him and got hired. So I worked part-time with the USGS for a summer and graduated and then they offered me a job. It was fun.

Q: And you ended up at the Arizona Water Commission right?

A: Right. So I spent six years working for the GS and then was interested in leaving and the guy that was my supervisor at the time came to me one day with a professional magazine and said, "Here they're looking for an engineer at the Arizona Interstate Stream Commission." I didn't know what that was. Why don't you apply for that? So they were looking for the engineer, a state engineer, state water engineer, and I interviewed. In the interview, they said well we're really looking for a hydrologist or wanted somebody more different caliber for the state water engineer. That's fine. So I took that job, '68 fall of '68. Started a month or so before Wes Steiner started in December I think it was or maybe it was the spring of the next year, January. And with the Stream Commission as it grew over time, it went from three, one hired on to, eventually when I left at 250 in the Department of Water Resources. It increased its authorities over time. It went from the Interstate

Stream Commission to the Arizona Water Commission which had inter/intrastate planning responsibilities and authorities and picked up things that had been parked different places like state and safety functions in the groundwater regulations, licensing, well drillers, and all of that stuff and then a big change in 1980 when it became the Department of Water Resources. The first thing we started on in '68 was coming up with a system to be used to allocate water out of the project, when was it, when it finally started delivering I think.

Q: Was that your first involvement with the CAP?

A: Yeah, I don't think I knew anything about it before that might have heard about it because it was a totem for the longest time in Arizona.

Q: The Colorado River water issues there and everything, what were your thoughts about it back then?

A: I don't know that I had any thoughts before that but as soon as I started, I got plucked into an upper basin, you know lower basins under the Bureau of Reclamation sponsorship were doing some pretty extensive planning efforts with water as well was part of it. And so I was a state's representative on some of those committees so I got to see a lot of river issues and became real familiar with them, much more familiar with rivers then most people ever will be and certainly more than I was.

Q: What were the issues back then? I mean what were people really paying attention to?

A: Well, you know the first thing that we worked on was what's become Minute 242 the San Luis pumping, the San Luis Mesa, you know. The Mexican Government started drilling, or did drill a series of wells on the Mexican side of the border. And the states, Arizona particularly and the Bureau, were concerned about groundwater being pulled from under you know dividing lines, they got a well

here, you think half the water would come from under Arizona and the other half from under Mexico. And so that would be water that they would be taking outside of the treaty and so Arizona was concerned about that so that was a groundwater issue and we got involved. Actually got involved with it first on how to develop a pumping program or a counter pumping program or something that would minimize, it was too late far too late to stop, but to minimize the impact in Arizona. It's an interesting old technical story I could tell you sometime but not today.

Q: Was the problem solved or was it compromised?

A: The problem worked its way into an international treaty, in addition to the international treaty between Arizona, United States, and Mexico and it's Minute Entry 242. And what it did was set up a limit the amount of pumping on both sides of the border allowed both nations, Arizona of course the only state involved, to pump 180,000 acre feet I think the number was on their side of the border. And the Bureau drilled the well field and the idea was to push the effluent as far into Mexico as possible. So if you got these two wells, we're pumping from here and they're pumping from the same place, so the water levels drop and at least maintain some equity.

Q: In '68 talk about your involvement with the CAP. What you were doing that had anything to do with them? The issues you were mostly concerned with.

A: Starting about then, the agency's charge was to develop a system to allocate CAP water amongst competing interests, those that were interested in, the people that had for years throughout the state had been interested; the Paysons and Flagstaff and all of those wanted to be a part, you know somehow we're going to benefit them too. And of course within the valley, what has become a service area, a direct service area. And we spent...it was like about 1970 before we really kicked off a system, it was a system of models that we used to analyze future Arizona economy as well as hydrology in the basins. And there was a state-wide

econometric model that looked at the state's economy. So you can see if you put water in it, where was the greatest advantage to the economy, agricultural or mining or whatever. And there was on my end of it, we built probably the first computer groundwater model of Phoenix basin, the Tucson basin, and Pinal County. That was my responsibility. I put that together. And so in between, there was a model that disaggregated the state's economy into, down to smaller tracks and I think eventually to individual potential contractors.

And so that would generate some type of economy and population projections and then it would be disaggregation that would eventually work its way into the demand for water; some of which was surface water, some was groundwater, and some CAP water. And there was a model, so we had the groundwater model, and off of that was a network that manipulated all the supplies. And then there was an optimizing algorithm you used, another model, to solve for whatever you set up. You could solve for the lowest price water for the Salt River Project for example considering all the supplies they had available to them. And then the cost of water 20 years out was used to update the economic models.

Q: When you look back on what you projecting in 1970, was it pretty accurate to what actually happen?

A: Oh no, no, not at all, not at all. The studies, the postmortems that have been done on different models generally find that the models aren't, groundwater models, aren't accurate as far as simulating the future because you don't know what the pumping is because in most of the United States, the growth has been entirely quite different, particularly here then what we predicted. We used Maricopa Association of Governments Transportation Planning population projections. And gee, I don't think there was hardly any population north of the aqueduct, the line of the aqueduct, projected. Places like Goodyear and Avondale were just little bitty farm towns and were expected to continue to be small farm towns. So we had allocated 150 gallons per capita per day to those population protections but

it's far less than the amount of water they need now days because the population is so much bigger.

Q: What happens in that case? Does everybody just go like well here's what our plan is and it's not working because there's way too many people then we thought so we'll just up it. I mean there's only so much water right?

A: Oh yeah, those contracts were signed. Offered and started in '72, we took the allocations back to the Congressional Representatives, State's Delegation, and then to the Secretary. And in due course they worked their way into the public offerings. But it took years before all the contracts...allocations were made. Contracts offered. Contracts eventually signed. Some dropped out. Payson was offered and decided not to. And some communities...southern Arizona communities couldn't when they decided not to build some of the infrastructure down there. When Orme Dam was scrubbed, it changed availabilities. So there was...in the end, those that moved forward aggressively got water they were allocated and not that any of them asked for more than they were offered, probably did, but it's less water than needed to take them off groundwater. There's still groundwater supplies available and surface water. Salt River Project of course is blessed with having fairly adequate surface water supply as well so they don't really need that much CAP water. The communities that have inside and outside responsibilities are using their CAP water outside.

Q: The CAP you set up to help the bigger, like Phoenix and Tucson, the bigger ones or were the little towns also included in it?

A: Well, it took a long time to build the project that finally came out of Congress and the Arizona people went...spearheaded the effort, well aware that they needed more than just Phoenix and Tucson, more than agricultural in Phoenix and Tucson because it was the primary benefactor to start with, and Pinal County. So they needed to broaden the base and so there was statewide schemes to get water even if it was through exchanges or whatever to Prescott and little towns here and

there. And even by a dam on the San Pedro was enabled as a totally separate project. Colorado River water went in there but part of it was the same project funding to supply the Upper San Pedro. Of course that didn't go anyplace that had Charleston Dam that fell off...fell off with the Legislation. But the intention was to spread the basin and originally it was primarily an agricultural project but overtime, as Arizona changed, it was agricultural that got it here and then found someplace that could afford it. And those supplies are shifting towards more and more municipal. But there's a large demand still for agricultural users, large deliveries to agricultural still. But that's intended, expected to change over time.

Q: As the CAP progressed and it started finally getting built and everything else, what were some of the biggest problems they were facing?

A: Back in '78 or thereabouts, one of the associated issues that was probably a put up job depends who you talk to was the if you don't control your groundwater use, we're not doing the project. And Secretary Morton came out and met with Governor Babbitt and waved his sword around and made a lot of noise. And that drove a whole separate effort to control Arizona's groundwater pumping. But the thought was, and had been sold all along, that it was going to reduce the groundwater demand and there wasn't any mechanisms in place and the legislative staged a mechanism to cause it to happen so you could, even if it got irrigation districts with contractual requirements to reduce its pumpage, it didn't stop anybody from drilling next door. And so that was probably one of the major hiccups in getting built. And then the Indians weren't very well represented or understood what their ultimate needs would be early on. I think the Indians knew. The tribal members knew. The tribal leaders knew. But I think as far as the rest of us, it was quite a surprise to find out that now we've got over half of the project water committed to the Indian communities for various ways through agreements and settlements.

Bill: You said a lot of people were kind of surprised about the Indian water entitlement or allocation. Care to comment about the Indian water allocation. We heard

somebody say one percent of the population taking fifty percent of the water. I guess how did you feel about that when it came through?

A: Well at the time, it was bemusing I guess early on, puzzling. What they would do with that much water? The Gilas are out to re-create their agrarian past with modern machinery and controls. And I suppose, you know, as the valley is urbanized, as it turns out, as the valley is urbanized and you can't grow carrots anymore for Fry's. They'll be growing them on the Gila Tribe just like the Sioux, the Sioux Farms grows the carrots now on the Salt River Pima Reservation and they'll probably continue to do that. But they grow them all over the valley. And as more of those houses end up on rooftops eh, as more of those fields end up under rooftops they'll be more agricultural on the reservations and probably the last vestige of it. But at the time it just seemed crazy. I mean why would they want to do that? And of course, Arizona vs. California contains some of seeds to their claims in a practicably irritable acreage test was resolved in Arizona vs. California. So that provided the Indian Tribes an opportunity to come in and say look these are our demands because this is our land we have and we could irrigate this much. And that led to claims on the Gila which is greater than the river flow. The river never had that much water in it, never.

Q: Were you involved in any of this when they were discussing it?

A: Yeah to some extent. The settlements, I never got too involved in. We were involved in the groundwater laws as far as the negotiations creating technical support for that. But the players in the Indian negotiations that started, gee back in the '70s late '70s, as the allocations were signed there were several settlements, allocations made to tribal governments even then back before the Gilas settlement and long before the Gila settlement, back before the Ak-Chin settlement. But it began to look like most of the water was going to go to the Indian communities 20 years ago.

Q: If they take fifty percent of the water that doesn't leave a whole lot for the rest of the growing state.

A: What happen was through very small, maybe not smoked filled rooms anymore, but generally closed door sessions by those that had powerful water interests which at this time included big cities. So Phoenix, Mesa, Tempe, and Scottsdale all through those Salt River Pima, Fort McDowell, Gila settlements, you'll notice they're all in there for something, whether they got an exchange of effluent for groundwater that they shouldn't pumped and so they give them effluent and they get back CAP water. There's leases, there's lease backs and all of those things were outside of the original allocations. So the major cities then where there, as they should, to defend I'd say the claims that their communities had for water. But what that left was like the exterior cities out like Goodyear, those were still waiting for the Secretary to finish up with its reallocation. Well the amount of water that was in that reallocation was boxed put in a box, because of these other negotiations and other changes. So communities outside of that you know it's gone, poof.

Bill: You were talking about back room smoked filled rooms any little meetings like that that changed the course of things that significantly altered the change the course of events of the CAP that you know about.

A: I wasn't a player in those things. You could ask Steiner and he can tell you. In fact, I don't know whether Wes is still alive. Is he?

Q: Yeah, I think he is. He's in California now and they interviewed him last year I think it was. We interviewed him last year I guess.

A: Yeah no, I wasn't a player in that. I was a technocrat. I spent most of my time...

Q: How about the thing when Carter had the CAP on the hit list and I guess that's when they changed all their groundwater things.

A: Right, that's what led to the Groundwater Code eventually the creation of the Groundwater Code to get the funding back on, back on track.

Q: Now was that a put up deal or was that a real thing, he was really going to get rid of it.

A: I had opportunities to spend some time with Governor Babbitt now and then because he was a technical kind of a lawyer because of his education. And so he was interested in water in deeper more technical terms then other governors that I've worked with. By then, I was Deputy Director so had an opportunity to spend some time supporting the governor and all, piece of legislation with governor or whatever. And Babbitt was truly interested in it. And in discussion and listening to him talk, I got the feeling it was kind of like a nudge, nudge, wink, wink sort of deal like we Roger, CB Norton, and I cooked that deal up. I don't think I've ever heard him say that exactly but there were the kind of hints he...

Q: I read something where it said that he and Cecil Andrus got together and talked let's put some pressure on this thing and get it done.

A: Yeah.

Q: You were talking about was the biggest problem for the CAP was. Who were the biggest heroes as far making sure things were happening?

A: It was a long, long push. And I suppose certainly the Salt River Project and its different general managers, Jack Pfister amongst them, was a major player. I don't think I ever knew where the money came for the Arizona vs. California but that was a...that was probably the monumental threshold step. Once that was done, then it was a matter of getting the votes lined up because now California was part of that. California would settle. And so they created a Colorado River Basin Project Act which had, pork barrels, everybody got a little piece of it.

Q: Arizona was so small back then. They didn't have a lot of powerhouses or did they?

A: No, two Senators and two Representative and that was it. So they had to team with others to even come up equal to California itself. Steiner was very active in it all along and, of course, the different members of the legislative delegation at the time were very instrumental. Carl Hayden, of course, could get most anything he wanted just by writing it down, you know. He got what he wanted pretty much. And others like that at that level. Every governor that was something, they had a stack of bibles on the CAP. Every governor was supportive. There was an organization called the CAPA, Central Arizona Project Association, that was a booster group that would get news out, get letters written, you know, get people to go testify. So it was a real broad community effort.

Q: What was your position with the Water Commission or the Department of Water Resources and everything? Were you involved in the groundwater thing and what was your involvement with that?

A: In the Groundwater Code?

Q: Yeah.

A: We...the way it started out was the Legislature, when faced with that threat, created a commission to study the issue and develop recommendations to bring back to the Legislature. And they put a hammer clause in it that Legislature had a certain period of time to adopt it or else it would become law. They kind of handed that authority over to, through their own Legislation, to the commission hence there was a couple years, '78 I think that passed. For a couple of years, we staffed the commission in its technical deliberations and we did state water plans and a bunch of things, and looked at trouble, potential trouble spots, potential water resources problems. And it didn't go any place until '80 and then Governor Babbitt about half way said, I guess must have decided, or maybe with several of

the others, people in those days that were important in the water business Pfister was amongst them, decided that the public process just wasn't working because there was just too many hatchets to be buried in people's backs to do it in public. So the Governor took it into one of his conference rooms and pulled the door shut for two weeks. And I was there to represent DWR's interests to provide support and the Governor told me, "Phil," he says, "I'd like you to sit back in the corner with that and don't speak until spoken to." And I said, "Yes, Governor."

And so I spent two weeks back in the corner with a different sport coat every day listening to him. Babbitt was very much part of stirring that. He was quite a mediator, negotiator. It was interesting watching him. After a while, I started to pay attention to what was going on with the different fights because he knew them all by heart by then. Just to watch how he worked or got these square heads and very intelligent people with all lobbyists and so they had things they had to get out of vector or sent to get out of it. How he worked them around to where they came out and you look at the law, it's rife with artful compromises or artful ambiguities that were settling up. And the set up kind of fell out of that process for every year for years. That's probably died out by now or maybe it's falling down, worried about little crumbs. But for years, those same people got together for every fall to figure what they could fix, that session of legislation, wanted needed to be done. And it was called the "Rump Group" and it almost became like the technical title was the Rump Group. And so it would come together arm and arm then with a package of legislation and Legislature just passed it saying don't mess with it.

Q: Is it adequate? Does it work?

A: Well, that's a question I think you could probably...it hasn't led the safe yield; it may never because maybe not in to the resources with the growth we've had to do that. Within the areas of where they have ample water supplies from agricultural developments, the basin is recovering that. Outside there's a lot of old communities that just don't have water supplies: Payson, Pine, and Strawberry.

And they don't want any meddling. They don't want anybody involved. They may rent it this year here. I don't know if you saw it in your newspapers here but there was a write up, some rural water interests. Some paper said again this last legislative session said 20, 30 years ago; we don't want you messing with our water. This is a local deal, stay away. Property rights, you know, we'll sell it if we want too.

Bill: Payson has done some, as I recall, Payson's done some interesting things about their water. Haven't they gotten into experimenting or testing or something, recycling waste water?

A: They've got a reclamation plant down, at the end of town there used to be a little kind of a ramshackle golf course down on the south west end of town on a little valley, a little alluvial valley that had been pastures that had some shallow groundwater and it'd be swampy in the wet spring. And down in that area, they've built a waste water reclamation facility and they reclaim the waste water there and they've got a lake that they've built and a recharge project. And they're actually recharging, the lake is part of the declaration, but they're actually recharging. But they still have...you can reclaim the water. You only reclaim a part of what you put in the system but you still got to have to have fresh water to add to the system.

Bill: Is that a sign of times though as water gets...the Colorado River is over extended, you know, and it doesn't run normally or something. Water runs up hill to the money or whatever. Isn't that going to be one of the waves of the future in your...

A: Well, it's already happened around the west, of course Colorado, New Mexico. New Mexico got its share of the water out of the Colorado system and bringing it over into the Rio Grande for projects that were built in New Mexico and Arizona, Colorado. Look at in California, the Imperial Irrigation San Diego compromises and look at the massive impacts of those kinds of things that where Imperial reduces its applications to reduce the drainage and by conserving water San Diego gets a

supply but the Salton Sea goes dry or toxic. There's all sorts of impacts on where the Front Range is taking water from the Western slope. Utah is doing the same with their Central Utah Project taking water out of the Colorado and bringing it over into Great Salt Lake Drainage. Arizona, you know, we pretty well destroyed everything at the turn of the century. If you were to go and do an Environmental Impact Statement let's say were going to take 250,000 acres of desert and we're going to put it into agriculture and then over time we'll build a city of three, four million people and we'll kill every javelina, deer, and antelope in the area and degrade the soil and water and sky, we couldn't have got that kind of an Environmental Impact Statement through now, but they did.

Q: Because Arizona was so small no one was paying attention or what?

A: There wasn't any regulatory authority for those sorts of things. We were making the desert bloom. We were civilizing the wilderness. Powell after his second trip in the Colorado River had some pretty strong feelings how the desert ought to be civilized but nobody paid attention to him.

Q: He was booed from Phoenix.

A: Yeah, you see it everywhere and of course those kinds of things have happen. Look at Los Angeles as it grew San Francisco, Hetch Hetchy, Los Angeles and Model Lake, Denver, Phoenix.

Q: Something like with CAP that's providing water to do these things and everything else is that like a good thing or a bad thing?

A: Well I guess that depends on your point of view. If you're trying to build wells or keep your family alive or enjoy wildlife in your backyard or you know, or this tail water sleeve at the end of the main drain in upper Colorado swamps. You know at the end where the river no longer makes it to the Gulf. I guess it all depends on what your viewpoint is. I've longed maintained that we wouldn't have the

freedom or the ability to be concerned about our environment if we hadn't burned it.

Q: What do you think, what do you see as the biggest water issue that's facing this state right now?

A: Rural, it's rural stuff. Colorado is already way over subscribed. There are some concerns whether or not the flow that we now get can be maintained. They talk about studies that have been done recently that show that we've been in a long wet spell. Back in the days when we were still fighting over CAP and the authorization, there was studies floating back even then that showed the period, the twenties, that were used, it was a long period record but there's a lot of studies that showed that was pretty wet period of record and that's forty years when that was said. Maybe that's true. Maybe the river won't deliver seven and a half; the upper basin is required to deliver seven and a half to us no matter what. You guys deliver that to us. What we'll see I suppose are reallocations and there'll be impacts of those. There will be water offered off the Colorado that is now used for agricultural, makes its way by CAP, and into the cities. Certainly the cities are trying to use water better and better but we get, probably get more out of it. But still for the major communities here they've got that luxury of having that water supply. But the big issues are rural and those water issues have never stopped development either. West Texas, El Paso, goes seventy miles for oil fields. It's no big deal. There's...they'll buy land out there just to get the water rights off it. Buy the water rights and the water rights are like an acre-foot an acre or something like that. It ain't much. And so, Payson will continue to grow because it's going to get some water out of the Little Colorado through Coolidge Reservoir brought back this way. Flagstaff got opportunities for more groundwater development. Payson, not Payson, but Prescott is looking to pump more groundwater just causing upper and lower basin battles or upper and middle battles. Like you said Bill, water flows up hill to money. It's not only that, it goes with the votes too.

Bill: As you look back on your career, disappointments?

A: Ah, not buying enough land. Should have bought more land.

Bill: (laughing) You personally?

A: Me personally, yeah, I should've bought more land.

Bill: I mean disappointments in your career. What do you think you tried to do that didn't accomplished? What do you think...that's half of the question that I was trying to ask you about, I'd ask you about the up side too.

A: Well, you know actually I had a charmed career I guess. I started out not knowing where I wanted to go or want I wanted to do. Accidentally ended up in the water business because a friend had a job that was empty and being a terrible procrastinator, I just stayed with it over time. And was lucky enough to be...have good mentors and was interested enough in the job that I did well. I really haven't had too many disappointments. Oh I think one of the...probably part of the grounding I guess you get every once and awhile in life is when I left the Department of Water Resources. It was kind of...not painfully but bemusedly interesting to see how much of the stuff that I thought was important nobody else did after I was gone stuff that I had done.

Q: Some of the way that they are handling water issues today, does it scare you?

A: No, we've had a couple of directors after Kathy Ferris left weren't that good. But I think it's always been...it was Steiner's legacy. He made a very technical organization. He expected the best. He expected honesty. He didn't surround himself with yes people. He wanted to know. He wouldn't always take my advice, but I probably wasn't always right. I think the legacy that he left in the agency created a very well trained candor of people. It's changed over time and boy, it's certainly not as exciting as it was when we were creating big pieces of big programs from scratch. Writing positions descriptions for a program that had just been authorized, but you know, what's it going to look like? How's it going to

work? How do you build this duck? Eventually it got down to where it was turn them, crank them, print more forms, and sending them out and getting them back and putting them away.

Bill: What about shining moments, accomplishments in your career? Things...

A: Things that I did?

Bill: Yeah that really got you.

Q: That you caused to happen.

Bill: This was a good deal.

A: You know, a funny thing was...in that bureaucratic environment and you're working with the Legislature and you're working with society, things just take so long to do that I can remember, I don't remember what it was now, I can remember being struck one time some piece of legislation passed and some program got started and it was like it had fallen off the boat so long ago. It was so far behind me. And don't even remember anymore why I was interested let alone get any enjoyment out of the fact that this piece of legislation finally passed. There're some things that we did do. This whole thing about rural water issues, Steiner brought back from Legislature in '72 a piece a legislation that set up what was called the Water Adequacy Program. And here, what's this going to be? I don't know. Work up the details and we'll run it through the commission and somebody worked up some...we never did write the rules for it. We just started. I think that's helped shape a lot of Arizona so it's probably one of the things I'd be somewhat proud of. Built a capable technical staff, had one of the biggest hydrology shops in the west in government or out.

Bill: This whole CAP project and the things that you guys were doing over the years, like you say started from scratch with no models, no previous experience, that has

made a significant change in what Arizona is, where it's going to go, quality of life. Talk to me about that yes, no.

A: Well, I think CAP had the potential to shape Arizona and it was moldable in what started out being an agricultural project and it eventually worked its way into being a municipal water supply with ag as the sponsors, and the bankers you might say, that got it here. We never saw this kind of growth when we were projecting, but oddly enough the systems that were created were malleable enough and had enough opportunities to adjust them that the cities never really seemed to be dealing with it water supply. Water supply never has been an issue in development other than small changes. The Assured Supply Program, I always figured we couldn't stop development but we could be the conscience. Make people think about they're doing.

Q: Do you think the state could eventually run out of water though?

A: No and it's puzzling to me, you know, forty something years in the business now and this last year's discussions talked about we just don't know enough about our water supply and water resources and all that. Hundreds of years' worth of, hundreds of geology studies of geology have been done there's a great deal of information available. But it seems to be the urban legend; we're going to run out of water. We don't know how much water we've got. We're going to run out.

Q: You say then in 1970 when you were building your models that you could project what was going to happen in the next 20 years and of course, there's no way to project how much growth there was. So if other people are making projections now for the next 20 years, can they guess what the growth is going to be?

A: No, but the system will accommodate it. And besides that there's a tremendous amount of groundwater available still. In Arizona, the surface water/groundwater link has been severed so long ago that for most of it doesn't matter anymore if you pump a lot of groundwater or not. So you've got that cushion which will lead you

through the twenty year drought. You don't want to build your civilization on it forever but certainly it's there to get you through a long dry spell. So there's a lot of cushion in the alluvial basins. Up on the plateau, some places there's a lot of groundwater and some places the edges it's just not well developed or it's not there or you're going to have to go twenty miles to get it. It's more of the infrastructures not there, money. Or you run into now worried about Environmental Impact of running a pipeline down the 87 or something like.

Bill: Well the Colorado River, let me ask you a question about that. The Colorado River is overdrawn. It's sort of the west's last water hole I guess. Has anybody thought about and maybe you've answered this, has anybody thought about what to do about the overdrawing of the Colorado River? I mean it seems to me from other things I've done that my impression is the Colorado River is overdrawn by two or three million acre-feet or more on a normal, on a normal year run off, water shed, or snow pack or whatever…

A: Well again, it depends on what model, the period of record that was used to divide Arizona. Divide the Colorado between the upper and lower basin. There was based at that time they thought they had fifteen million acre feet to divide. The question is now was that a wet period that they based that on or a dry. And the indications are that was a wet period. So...this thing that saves that is that the upper basin yet doesn't use its half and so that water accumulates in Lake Powell and allows us to draw, the lower basin us, to draw our seven and a half. And in some years more because the reservoirs are full and they declare surplus and you can take even more, or even when the reservoir is not full and they can declare surplus and can take even more. And of course, California has been four, five hundred thousand, three, four, five hundred thousand over its share for the longest time. And this is now getting back to living within its means and of course that's now creating problems elsewhere. None of that seven and a half, and there was water set aside for Mexico, that was for agricultural in Mexico. It wasn't for the slue. It wasn't for wildlife. There's no water for wildlife except for what's been acquired or what's there incidental to use. I mean we use the Colorado as a

canal to run water between the reservoirs so you got a lot of habitat associated with it. Buy up farms and turn it back into habitat. There's still a lot of cushion and what'll happen is agricultural just won't be able to compete. Agricultural will get to the place where they'll be trades made or dollar talk. And maybe take it, maybe the Parker Valley doesn't dry up and blow away but for some years some of that water comes into Arizona or California.

Q: Does the average person understand what's going on with water issues in Arizona or is it...

A: No. No, all they know is what they read paper and God help them.

Q: Where do you see as the future for CAP?

A: It's an institution. I mean the agency that runs it calls itself CAP now. And they are going to be severely challenged to meet the municipal and industrial demands as the future unfolds thirty, forty years out because the predictions of the Colorado River flow is going to be less then. And the agricultural holds your water that's under contract called non-firm and in some years that'll be there and in ten years the water will be there and it could be used and maybe in another ten years it won't be. And so...it's only the firm water that the cities have contracts for. What the CAP is, over time, is facilitated to the use of that water in recharge projects and they've got to in lieu of recharge projects or rather their director there are opportunities, or in lieu, opportunities to buy water at reduced rates. Get it recharged, bank it now for later. The Arizona Water Bank was set up to do that to work with the CAP. So they're kind of a buyer last resort, nobody else has bought it we'll take it. The CAP is now looking at becoming, in the last few years, was to look at the idea of becoming the water broker for unused or transferable Colorado River compacts, contracts, rights that could be brought back into Arizona using the facilities. Down the road ten, twenty years, they'll be excess capacity of the river because the river will be down. Excess capacity in the aqueduct and so they'll look at bringing that in. It's going to become like the SRP has over the last

hundred years kind of a father water, a vendor. Always there, always involved, looking out for their own interests too.

Q: You're the second person that has told us that maybe we won't have any water problems for maybe thirty years and everything else, well what happens in thirty-one years?

A: The problems don't start what happens is there's a wedge...we've got a surplus right now. In thirty, thirty-five years out that surplus will disappear. So the Colorado River now delivers, CAP now delivers, in that basin more water than ag and the cities can use, not more than their contracts. Their use is less than their contracts. And so that's where this recharge water is part of. It's part of that wedge so now we've got water available over and above. You've got ag and M&I and then there's this wedge of water as demand goes up, river flow stays the same so you end up thirty, thirty-five years out there won't be any surplus.

Q: In thirty years maybe the population will double again?

A: The projections are something like that, aren't they?

Q: Yes.

A: But cover up the agricultural and within the Salt River Project there'll probably be a supply for them still and if there'll be reallocations at least for the Indians and stuff like that.

Q: Any advice for the people who are running the CAP?

A: No, I think they're in good hands. They're all old water hands at the helm. They know what they're doing. They've been around. Sid Wilson's been...he and I started about the same time. He knows SRP and the water business in Arizona and of course, they've got a lot of their advisors as well as their own Board.

Q: Anything I didn't ask you that you thought I should've asked you?

A: No, we've covered a lot more ground then just the CAP so we probably talked about more than we needed to.

Q: What are you doing these days, you're consulting?

A: I'm consulting yeah. I'll find something I see. I'm still doing water resources stuff went back to the simple stuff that I can do without too much help.

Q: Let me ask you one last question. Are you afraid for our future? Do you think we're fine?

A: No, fine. The problem is in the Government, like some city councilman hears that there are problems with Scottsdale's water or Payson's water or whatever. It's just lack of understanding, lack of education, lack of good advice and of course, the whole news thing what you read in the papers. Unless it's a problem or somebody's died or something, it doesn't end of in the paper so they're not going to write about a story that says twenty million acre-feet of groundwater in Arizona, or one and a half billion or whatever the number is, you know we only use 3 or 4 million a year so we've got plenty for a long time. The problem is the distribution; I mean some of it's down by Yuma. The drought's plan, the drought's plan disappeared as soon as the reservoir's filled up. The rural water issues are going to take time and money to fix. They're fixable. The resources are available and they might be within city limits now. Flagstaff and Prescott will do what Las Vegas did when it was a little town and what Phoenix did when it was a little town. They'll reach out.

(No questions asked but talking about Kathy Ferris) On the Groundwater Code Commission or something like that, Arizona Groundwater Commission and so she was intimate in all of those smoke filled room deals. So she would know about what did Babbitt really say. What really happened, you can find out. She was in

her twenties and fairly fresh out of law school. She had been a...she was serving as not an intern but as staffer is how her career in water started. I worked for her what from maybe '85 to '87 something like that.

Q: This whole issue is complex and…

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