

ERIC KUHN

PS: Today is October 10, 2006. We're in Glenwood Springs doing an oral history for the Colorado River Water Users Association. We're here at the Colorado River Water Conservation District offices. I'm Pam Stevenson doing the interview. Our videographer is Bill Stevenson. Give me your full name.

EK: My name is Richard "Eric" Kuhn. I go by Eric.

PS: Tell me about when and where you were born.

EK: I was born July 4, 1950 in Edmonton, Alberta. My father was a geologist. Both my parents were American citizens and they grew up in the United States. I just happened to come along while they were in Canada.

PS: So where did they live?

EK: My dad grew up in Arizona and went to school in California, went to the University of California, then went to the University of Arizona for graduate school. My mother grew up on a farm in North Dakota. I lived for the first seven or eight years with my father was working for an oil company. We were on the road, various places, and I was born in Canada. Then we moved to Tucson where he finished his doctor's degree and then he moved to Flagstaff in 1959 where he taught for Northern Arizona University. It was Arizona State College at the time, but now it's Northern Arizona University, until he retired in the late 80s. He taught geology. For most of my time, I grew up in Flagstaff, Arizona, which is right there on the Colorado rim and the Colorado plateau near the Colorado River but the Colorado River wasn't a big part of growing up in Flagstaff, although the Grand Canyon and all that, that was big. When my dad grew up in California, he spent his high school years in Needles. He remembers it was about the time they were finishing Mojave Dam. Hoover Dam had been completed, but that was

a time when there was a lot going on on the River in terms of what we now call the older projects that were pretty new in those times.

I went on to school at the University of New Mexico. After four years at the University of New Mexico, I went into the Navy. I was a naval officer in 1972 through 1978. I got out of the Navy and went back to graduate school in southern California, and then I was working part-time and going to school part-time. In early 1981, I moved to Glenwood Springs and started working with the Colorado River Water Conservation District in the spring of 1981.

PS: Back up a little bit, more about your education. You chose not to go to school in Flagstaff with the university there?

EK: No, I went away to school. I went to school on a Naval ROTC scholarship and my choices at the time were University of Idaho, University of Colorado in Boulder, and the University of New Mexico because they had Naval ROTC units with openings, and I chose New Mexico because it was just a little bit closer to Boulder. It was just down I-40 from Flagstaff.

PS: What were you majoring in?

EK: I majored in engineering science and my specialty at the time was nuclear engineering and I went into the Navy nuclear program. That's a long time ago. It has nothing to do with water.

PS: That was during the Vietnam War period.

EK: It was during the Vietnam War period, yes.

PS: Did you serve over there?

EK: I served in the theatre. In other words, for about three months or so, I was on a small submarine that wasn't nuclear powered. It was kind of a temporary assignment. I was on the USS Harder, which was a World War II vintage submarine, and we were off the coast of Vietnam. So I did set foot on it. Sometimes I consider myself more a Vietnam Era veteran than a Vietnam veteran, leaving that for those who were actually on the ground there.

PS: Some people joined the Navy so they wouldn't be on the ground.

EK: That's right. We were on the ground at times, yes.

PS: Did you plan to make the Navy your career?

EK: I never really planned to make the Navy my career. I always wanted a technical engineering career. I went back to graduate school, and I majored in Business and Finance, and I didn't plan on making water my career either. It was really an accident that I ended up here, if I can tell the story. I worked for the Bechtel Power Corporation as a start-up engineer and I was working on what was called the San Onofre Power Plant which is just down south of San Clemente. It's between Los Angeles and San Diego. They were redoing the start-up testing. The offices of Bechtel were in Norwalk, California, which is right on the Orange County-Los Angeles County line and I was waiting for one of my fellow workers. We were going to drive down to the plant, and he got a phone call. So I was outside his office, and I sat down and I picked up a Wall Street Journal. I normally didn't read the Wall Street Journal, except occasionally. I was just kind of thumbing through it and I saw an advertisement for an Assistant Secretary Engineer for the Colorado River Water Conservation District in Glenwood Springs. I thought hmm, and I did what most people did, I kind of tore that section of the paper out, and I brought it with me. I looked at that, and it said send resumes. I didn't have one, so I put together a resume and a letter and

sent it in. I was one of six or seven candidates they ultimately interviewed, and for some reason, they picked me, but I had no water background at all.

PS: What intrigued you about that job?

EK: What intrigued me about the job was it was the Colorado River, and quite frankly, it was living and going back to what I call the inter-mount west. I had gone to school in Albuquerque, I had lived and grew up in Flagstaff, we had occasionally come up here to visit, be tourists when I was a kid, and just living in western Colorado seemed like a very interesting thought, so it was just the intrigue of it. I was a nuclear start-up engineer, and I also knew that I didn't want to stay as a nuclear start-up engineer for very good reasons. The plants that were being built were the last of the generation, and there hasn't been a new start-up now in 25 years. I won't say it was a dead-end street, but I was looking for something else in my career.

PS: So it was kind of starting over then.

EK: It was brand new. I did have project management experience. I had basically an engineering background. Much of what I do here is more organizational than it is true engineering.

PS: What year was it that you came over here?

EK: In the spring of 1981.

PS: What was Glenwood Springs like then?

EK: Well, Glenwood was pretty much like it is today, a lot smaller. I got here just the same week as the Redstone Mine disaster. There was a mine explosion up Crystal River. It was a real tragedy. Killed 12-15 miners, I believe.

Everything in the paper was dealing with the mine tragedy. It was also kind of on the outskirts but really impacted by the oil shale boom that was going on. The focus of that was Parachute and Battlement Mesa and Rifle, but Glenwood was a part of it as well, as was Grand Junction. Things were really booming then. Glenwood was more of a working class town then. A lot of the miners lived here. Glenwood was still a ranching community. Glenwood has always been sort of a government, shopping center, hospital center, for this region of western Colorado. That's where people would come in and buy their cars. The hospital is large compared to a city, because it's regional. The water court is here. Many of the water lawyers that serve western Colorado and the engineers that serve western Colorado, their offices are there. They live in the Glenwood area because it's sort of centered to what's going on here.

PS: It's always sort of had a tourist component with the hot springs?

EK: It has a tourist component for the hot springs. The tourist component has really surfaced in the last 25 years. It was big then but it's much bigger now. It was always a quality of life kind of place to live, but it was also a bedroom community for Aspen and Vail. Beaver Creek had just started up. So it was a working class bedroom community. Now I look at it and I can see where Silt, New Castle, even Rifle, places to the west are now bedroom communities for Glenwood Springs.

PS: What was the Colorado River Water Conservation District doing 25 years when you came here?

EK: The River District was in a transition. We go back to 1937, so we're going to be 70 years old next year. A water conservation district is somewhat unique and to explain why we exist, you've got to go back to pre-1937. Transmountain diversions have always been a major political issue in Colorado. In Colorado, we have a situation where about a third of the state is to the west of the Continental

Divide, two-thirds of the state is to the east of the Continental Divide. The Colorado watershed itself provides about 80% of the water in the state because of the snow shadow effect. The storms come from the west and they dump moisture on the mountains, west facing, north facing mountains. East mountains don't get as much. So there's always been an imbalance in Colorado between where nature gave us the water and where economic development gave us the people. So by the turn of last century, by 1900s, the Platte River and Arkansas River were already fully used. The intrepid irrigators at the time looked to the west and they looked to the Grand River Ditch. You go up a pass at 11-12,000 feet and reach out and do a gravity system and bring a little bit of extra water back, but by the 1930s, Denver was looking at building bigger transmountain diversions, their Moffatt Tunnel collection system. And there was a debate indeed about the development of what is now called the Colorado-Big Thompson Project. At the time it was called the Grand Lake Colorado-Big Thompson Project, where you'd actually put a tunnel at the Grand Lake and run it up underneath the Rocky Mountain National Park to Estes Park and provide a significant amount of water, 250 to 300,000 acre-feet, to the east slope for supplemental irrigation, so that was going on in the 1930s. The state didn't have a Colorado Water Conservation Board. The state didn't have conservancy districts. The state didn't have the type of conservation districts we have. They had soil conservation and those kinds of things, but not a water conservation district. Our predecessor was called the West Slope Protective Association, and it was an informal group of water lawyers, county commissioners, public leaders that said we need to organize to negotiate with the front range over the terms and conditions that would be put in place to allow the federal approval of the Colorado-Big Thompson Project. They were the Northern Colorado Water Users Association. That was successful, and we had an ace up our sleeve because Congressman Edward Taylor is from Glenwood Springs, and he's buried right down here in our local cemetery, and he was the Chairman of the House Appropriations Committee. He was in his late 70s by the mid 30s and he had been in Congress for many, many years. He was a Democrat, and seniority had

given him the position as Chairman of the House Appropriations Committee. For the folks that wanted to build the Colorado-Big Thompson Project wanted a successful project, they had to go through Congressman Taylor. So this group called the West Slope Protective Association, the Northern Colorado Water Users Association, negotiated what is called a Senate Document 80. It's a compromise that allowed established terms and conditions that would protect the west slope in the development of this big project. After the completion of that, there was discussion in the State Legislature about forming a Colorado River Conservation Board. They didn't have one before that, and also the federal government was saying you need to form something like the Utah Conservancy District. We had water users associations, but we didn't have conservancy districts. The difference is a conservancy district can put in an ad valorem tax, a property tax, district-wide. So the United States said if we're going to build as big a project as the Colorado-Big Thompson Project, you need to have a conservancy district that can back the repayment contract with taxing. So the bottom line is the Colorado River Water Conservation District and the conservancy districts statute in the CWCB were all compromise among legislators at the time. They were all a package. The forefathers of this district basically said let's make this West Slope Protective Association a more formal group. Let's give it legal authority, let's give it some funding sources, and then they formally developed it and passed the law and were chartered. We're a state-chartered conservation district. We're not a state agency.

PS: What were the issues and what was the status of the conservation district when you came here?

EK: Well, we were in a transition. Because from the 30s, 40s, 50s, 60s, early 70s, the model for development of water was one that the federal government would do it for us under projects that would be authorized by Congress and built by the Bureau of Reclamation. That era sort of began to end in the 60s. It's really been tight. I look back and even the Colorado River Storage Project Act

which was passed in Congress in 1956, authorized the construction of the Aspinall-Navajo, the big one of course is Glen Canyon Dam. Lake Powell passed by a relatively narrow margin in the House and there were almost no Republicans supporting it in those days. The Democrats supported it and there were more Democrats at the time so it passed. And it really was not known whether President Eisenhower would even pass the Colorado River Storage Project. When I say pass, would he sign it. But he did. So the model of the River District for the first four years was we had a couple of employees, an engineer, a manager, someone to open the mail, someone to do the bookkeeping, and we had a law firm. So we were a three-four person entity. What the District would do would be lobby for federal projects. It would go to court and obtain water rights in state court and turn them over to the federal government for projects like the Aspinall Unit. It would also be involved in the transmountain diversion issues on the legal side, so we were sort of a small organization that dealt with policy. In the late 1970s, I think that everyone saw the days when the federal government needed to subsidize western water projects in order to encourage the settlement of the west were over. There was the story, the Sun Belt came in 1971, 1972. The author of that, Phillips, coined the term Sun Belt, and said the sun, the lifestyle would encourage the settlement of the west and the south. It was clear that federal deficits and the fact that the federal government no longer needed to be active to encourage the settlement of the west, the federal projects were over. But at the same time, our needs weren't over. We were booming, oil shale was there, there were still transmountain diversion issues, so the Board, in the late 1970s, said we can no longer rely on the Bureau of Reclamation. We're going to have to expand. Then I came in, I think I was maybe the fifth or sixth employee of the District and I was the first in what I would call the modest expansion of the District, because today we build and operate our own projects. I wouldn't say we were like a Bureau of Reclamation, because we only have 20 some employees, but we do have dams and we do operate projects, and we provide water. We do the things that back in the 30s and 40s people thought the Bureau of Reclamation would always do.

PS: So how many employees were there when you came?

EK: I believe I was the fifth employee.

PS: And who was the general manager?

EK: The general manager was called a Secretary-Engineer, which was the term for the general Manager, going back to the 30s again. It was Rollie Fischer.

PS: What were some of the big issues you were dealing with at that time?

EK: I think the biggest issue we were dealing with was that recognition that the future wasn't going to look like the past. When I say the past, the era of the small Reclamation project, the era of the big government development. The future and the economics weren't necessarily that important to everything, because the Colorado River Storage Project Act developed a way where you could subsidize, you can use power revenues, to subsidize irrigation. I think the recognition was beginning that, in the future, subsidies from either power or federal taxes, weren't going to be in the system, so projects were going to have to pay for themselves. And projects were going to have to be developed and water supplies were going to have to be developed in a way that met needs based on an economic analysis, or the beneficiaries of the project were going to have to pay for it. So it was that the future was going to be very different from the past.

Two other things that were important. The second was that although the Endangered Species Act had been in place for awhile, we didn't recognize how powerful the Act was until a case in Tennessee. I believe it was the snail darter case. I'm not exactly sure of it, but Rollie was involved in that at the time. And essentially what the Supreme Court said was this Endangered Species Act was real, and federal agencies are obligated not to take actions that would make conditions for the Endangered Species worse. And they were implementing

rules and regulations so there was a real recognition there that ESA was more than just a paper law.

PS: Were there any immediate cases that you were worried about?

EK: There were a number of cases. There was a case on the Front Range that we followed involving a river, that was called the Riverside Case. It involved whether the Corps of Engineers could deny a 404 permit for an irrigation reservoir down near Sterling.

PS: What's a 404 permit?

EK: A 404 permit is Section 404 of the Clean Water Act. It's a federal action that you need of everyone who's going to put a project on a stream or related to a stream, needs to go to the Army Corps of Engineers and get a 404 permit. They denied this permit based on the impacts to endangered fish in the Nebraska. The Tenth Circuit said it's against the law of the land. They were interpreting the Tennessee case. When we realized in the Colorado, at the time there were four endangered fish and perhaps others that we were headed for a train wreck unless we had a way to deal with the Endangered Species Act. So one of my first jobs in the District was working in a task group that formed what is now the Upper Colorado River Endangered Fishes Recovery Program. We negotiated, discussed, cussed the whole thing for about six or seven years, and then in 1988 the Upper Basin states and the Secretary of the Interior, and water users, and environmentalists all signed what's called the Recovery Program Agreement, which is about a page and a half long but it put in place the Recovery Program Agreement. Just to follow that through, today we're working on the completion of enlargement of a reservoir up in the Yampas called Alcad. We're the sponsoring agency. We're responsible for the engineering, the construction and everything and the Recovery Program is a partner. Their approach was that if they're going to need water, and they do need water, the Recovery Program

meant rather than taking it in terms of a permit, what they're doing is participating with us in the construction of a reservoir. And that was over 20 years ago. Today we're just finishing up that program. We've built fish ladders, we've built fish screens, we've acquired water through state law, we've got in stream flow programs. It's a great program but the problem is it's still not going to guarantee that endangered fish are going to recover. We're hoping they are. They're better off today than they were 20 years ago but it's still going to be touch and go, especially for a couple of the fish.

PS: When you moved here in the early 80s, what did you know about Colorado water issues?

EK: About nothing.

PS: And so it must have been a fast learning curve.

EK: It was. I knew very little about it. I knew where Lee Ferry was because Lee Ferry is a hundred or so miles north of Flagstaff and I'd been there a few times, and I knew where the Grand Canyon was and that's about it. I didn't have the faintest knowledge about how Colorado water law worked, or the intricacies, the politics of east slope vs. west slope. Almost nothing.

PS: So they didn't hire you for your water expertise?

EK: No, they did not.

PS: What was your first job here then? Why did they hire you? What were you doing?

EK: I did have some experience because I was working for Bechtel Power. I was working on project management there, start-up project management, at San Onofre and Palo Verde. The River District was exploring whether or not it should

build its own big dam called Juniper Cross. I came in at the tail end of Juniper Cross but it's a large reservoir, two reservoirs actually on the Yampa River, and I think they were looking for somebody with project management experience that could take a relatively large project and coordinate the environmental, engineering, and all of the other aspects of the project and put it together. The project was a victim of the oil shale bust, as well. And it was a victim of the Endangered Species Act. It was in critical habitat. So not long after I was here, the Colorado Ute which would have been, which was an electrical and generation and transmission co-op in Montrose, went bankrupt a few years ago and was absorbed by Tri-State, but it was the prime sponsor of the project and was going to use it for peaking power and it was going to use that power to meet the demands for the oil shale industry. Soon as the oil shale went south of that project, Colorado Ute had to get out of that project. We kind of kept looking at different alternatives for a few years but it was clearly dead when oil shale went dead and it might not have survived to begin with.

PS: What was the project trying to do?

EK: It was water storage for electrical energy. There were two reservoirs, Juniper and then Cross Mountain. Juniper was similar to Blue Mesa Crystal, a large reservoir that would store water and then use it for peaking power purposes, and at a smaller reregulating reservoir downstream, so you could smooth out the water fluctuations, the flows. When I say peaking power, when everybody gets up in the morning and turns on their microwaves, then they come of the office, and the air conditioners kick in, and schools kick in, the power goes up. It's called load following. The power goes up during the day, and then it comes off at night. What Colorado Ute was looking at was a source where they could operate a large power plant and not produce power at night, but use it in the day. That's called load following. So they were looking at Juniper Cross as a peaking power plant and it had a million acre-foot reservoir, roughly the same size as Blue Mesa. So it had a lot of water there. About the time that that project

died, the east slope-west slope issues started heating up. Governor Lamm created what's called the Governor's Metropolitan Water Round Table. The idea behind the Round Table was to try and seek a consensus between the east slope and the west slope on whether or not there should be more diversions from the west slope to the east slope. As soon as Juniper Cross died, the Governor's Metropolitan Round Table and transmountain diversion politics heated up. I was very busy with that. In fact, in 1985 we hired another engineer. In 1986 we hired another engineer. Ultimately, we ended up entering into an agreement, we call it the Rock Creek Wolford Mountain Agreement with Denver and northern Colorado and it gave us the resources to build our first large reservoir which is up on Muddy Creek, which we started permitting in the late 1980s, 1986, 1987, and was completed and filled in 1995. So that was our first major project.

We had a minor project that I was involved in in the early 1980s called Taylor Draw that we built through a sub district. That's just outside the town of Rangely. I was the project manager for that. I helped the Corps get the EIS. We had an engineering firm that did the construction and construction management, but I sort of assisted with them. We managed the cash flow during the project. It was financed with a local general obligation bond. It was built primarily for recreation. So those were the first two reservoirs that we built without any help from the Bureau of Reclamation.

PS: What sort of problems or challenges did you confront in getting these built?

EK: There were two challenges. The engineering was not a challenge. The engineering was the easy part. The challenges are getting local support, the local politics, finding a source of funding, and then the final challenge was getting all of the permitting. It has been my observation that if you have a good project with strong local support, the permitting will come. You might have to make some changes, you might have to make some modifications, you might have to

deal with things like wetlands, but the permitting is not a block as long as you've got strong local support. In the case of Rangely, Taylor Draw, we had local support for the project because it's way out in western Colorado and they wanted a small reservoir near them to help with flood control, especially icing in the winter and to provide a source where they could just get out and it's five minutes away to take their boat and go for a spin. So there was strong local support there. In the case of Wolford Mountain, it took three, four, five years to develop a consensus among all of the competing interests, the transmountain diversions, Denver is 40% partner in the project, and address all the political impacts, of the project, Grand County, the town of Kremmling. Since it delivers water to Denver by exchange up to Dillon, we had to deal with some accounting. We had to deal with perceived water quality problems in the Grand Valley, so there were many, many agreements that had to be put together, stipulations in the court cases. Ultimately, we put it all together, we signed all of the project permits, and the construction was the easy part. The engineering construction was simple compared to the politics.

PS: Who were your allies on that process?

EK: Ironically, our allies were Denver, because they use a part of the project. Our allies were also Grand County. We looked at two different alternatives for the project, one which is Rock Creek, a little bit west of Kremmling, and the other is just north of Kremmling on Muddy Creek. Initially we thought from our engineering advisors that the Rock Creek site was better but it wasn't as politically acceptable because it was quite a ways away from Kremmling. It turned out it wasn't better from a hydrology standpoint. The Muddy Creek site had better water supplies and it was a much better site overall. But we needed to make sure the commissioners and the local town were all happy with the way the project would operate. We made commitments to insure the mitigation area and we would operate the project in a way that would help the fishery. So there's just many local issues that had to be overcome. We had to get a county permit.

We call it 1041 permits here. It's named after some law in the 70s, House Bill something or other 1041, but everyone calls it 1041 permit, and basically means you gotta get a permit from the county commissioners for a project like that.

PS: Who were the opponents?

EK: As it turned out, we didn't have any real serious opponents. Serious opponents mean you won't build a project. Initially, some of the ranchers were concerned that the project would operate in a way that would diminish their current benefits from Williams Fork. We wrote the agreement such that we wouldn't impact the operation of Williams Fork Reservoir, so they went away. The environmental community actually supported us. They saw this as a way to help meet the east slope water supplies without building the big Two Forks Dam, which was a huge project. So we had environmental support. When we got all the t's crossed, and the i's dotted, we got all the agreements in place, we really didn't have any opposers. We had support.

PS: What's the time chronology here? When did this project start and when did it actually get finished?

EK: The idea for it came out of the Round Tables in 1983, 1984. We called it a joint use project. We applied for permitting in 1986. We did an Environmental Impact Statement. The Bureau of Reclamation and the Bureau of Land Management were our two lead agencies. We needed a contract with the Bureau of Reclamation to move the water from Wolford into the complicated water rights issue. We could move it up into Dillon through Green Mountain and we needed land from the Bureau of Land Management. So we spent about four or five years on the Environmental Impact Statement process, finalizing our mitigation plan, working with the EPA, doing those kinds of things. We did most of the engineering in '92 and '93 and we did the construction in '94 and '95, and the project began filling in 1995 and finished filling in 1996. It was a wet period,

so there was lots of water. It was a 10 year project, but that's quick. Many people in this business will spend a career on a project.

PS: When you came here, did you think of this as going to be your career?

EK: I really didn't know. I wasn't married at the time, met my wife here a few years later. Now it's my career, definitely. After 25 years!

PS: In talking about the good ole days of water politics, when would be the good ole days?

EK: I think I came in at the tail end of the good ole days. I see the good ole days as the 60s and the 70s and the Carter hit list, and the 1977 drought. I heard lots of stories. I'm glad you're interviewing Rollie, because he's great, perfect for that. And the battles with Denver over establishment of a wilderness area outside Vail. Some of those are what I'd say I was on the tail end of the good ole days. Some real classic battles. Much of what I've seen is maybe we'll look back in the future and say the Recovery Program was part of the good ole days when we all got together and worked things out. The other part of this is the big federal facilities on the River. I've been involved as an engineering advisor to the Upper Colorado River Commission since I got here in 1981 as well. Just the river politics have really changed. Gone from an era when we had plenty of water because we didn't have the demands on the system that we have today and maybe we had abnormally wet hydrology to an era, I think, of realism today. And that realism is there's probably more water demand for water on the system than there is supply, at least in many, many years. So the good ole day is when Glen Canyon would fill, the filling criteria went from the late 60s to 1980. It took a long time to fill it because you had to meet downstream demands while you were filling a 25 million acre-foot reservoir. It filled about the time I got here. We had lots of wet years. We had a little drought from 1987 to 94. It was really a pretty good drought but the demands weren't there. The Central Arizona

Project was not online. Las Vegas was using a lot less water. We had flood years in '83, '84, '85, '86. Then we had relatively dry years from '87 to '92, and then we began another wet period with a real big El Nino year in '93. Dry year '94, wet years '95, '96, '97, '98. So you can see the first 15 years of my career, we didn't care about water shortages, because Lake Powell was full and spilling, except for a few years. Really, what has now changed, I think, is we're in the era, the realism that we're in an age of limits. Since 1999-2000, I'm one of those that believes that we're not necessarily in a drought, that we are going back to conditions that are more normal than the very wet conditions that we had in the early 80s and the mid 90s. The definition of drought is you don't have enough water. It could be caused by either nature or it can be caused by more demands than supply. Right now, I think we're more into a manmade drought than we are a natural drought. Because when I look back at the work that's been recently published, and looks at the history of the Colorado River, the paleohydrology, looking at trying to reconstruct the flows from about the 1100s, 1200s, through today. The twentieth century, the 1900s, were really wet. And unfortunately, there were two real wet periods that I think are going to create problems for us in the future. The first was from about 1905 to about 1930, and what did we do in that period? We signed the Colorado River Compact. The second one was from about 1975 to about 1997 or 1998. Another extremely wet period. What happened in that period? Explosive growth of the west. That's when Las Vegas went from nothing to two million people in the area. That's when the Central Arizona Project came online. That's when we expanded a number of transmountain diversions. That's in the era when the ski industry took off. You had an extremely wet period when we decided to divide up the water, and you had an extremely wet period when we were undergoing explosive growth, and now we're maybe back to normal. So I think we're going to be looking back and say that the good ole days is when we had lots of water, and that was from about 1980, mid 70s really, on the River, to the late 90s.

PS: Were those good ole days really so good, or was it just because we looked back.....

EK: Whenever you look back, it seems better. We had no idea of what we were doing then in some ways. Because you know the Bureau of Reclamation was changing, but it's slow. Everyone still hung on to the idea that no, maybe Congress will come back and appropriate money for the West Divide Project, or the San McGill Project and looking back on it, we say never was going to happen. There were good ole days in that we had lots of problems, but we just didn't know what we were doing. We know we were transitioning out of the federal era, but didn't know where that was going to end up.

PS: Looking back, what projects or legal developments do you think prepared Colorado to become what it is today?

EK: From western Colorado's perspective, the legal issues were in the 20s, 30s and 40s and that made it clear that transmountain diversions were legal under state law. That Denver, Colorado Springs, Greeley, Fort Collins all had the same rights as Grand Junction and Glenwood Springs to come to the west slope and appropriate water. And that's why we're here. Because it's to recognize that the reality was that the east slope, under our state law, had the same access to Colorado River water as anyone else. We had to develop a legal mechanism not to stop transmountain diversions but to make sure that when they occurred, we got something out of them and we could live with them and that we had mitigation.

So that's one, and the second one was in the 1950s was the passage of the Colorado River Storage Project Act in 1956 and the 1968 Colorado River Basin Act. The 1956 Colorado River Storage Act authorized the Aspinall Unit. It authorized Flaming Gorge, Navajo Reservoir, and especially Lake Powell. The world in western Colorado would be very different without those large federal

reservoirs. The federal government still operates them. They have power plants on them. The power isn't the big issue. The big issue is that having that water in hand in storage allows us to more further develop our water supplies in dry years. Really, we've been living off the savings account for the last seven or eight years in Powell and Mead. And those reservoirs are going down. Hopefully, someday they'll come back up, but I think that those are the two really, maybe the three, the Colorado River Compact of 1922, the Supreme Court cases in the early years that made it clear that transmountain diversions were legal under Colorado law. And finally the 1950s, the Colorado River Storage Project Act that gave us Glen Canyon Dam and Lake Powell and the big federal reservoirs, that allowed us to develop the way we have today.

PS: You may have already answered this, but how have western water issues changed during your career here?

EK: Well, environmental issues have become much more important. We were just beginning to think about the Endangered Species Act, and now you don't even think about a project without saying how will it fit with the Endangered Species Act. Water quality has changed as well. It's gotten better, because of access to federal funds for the development of water treatment plants. But at the same time, there was a belief in the old days that water quality and water quantity never mixed. In other words, that they were separated. And we knew better. It was a political position, but now we really do recognize that water quality is important. When I say water quality, it's things like temperatures, the temperatures of our streams that support trout. Recreation has become, and especially in Colorado, it was booming in the early 80s, but it didn't have the political power. I think there's probably a ten to twenty year lag between when industries develop and when they really get the political power, and today rafting, fishing, skiing, and especially in Colorado, second homes. People come to Colorado to get a second home in the mountains, and when they come, it's because of the beauty, it's because of the view of the river, it's because of the

access to the streams, the mountains. It's everything, it's the clean air, clean water, and that is really important today. That drives many of our decisions today is protecting that quality of life. Protecting that recreational/second home market. That has changed. In the early 1980s, if someone would have said Colorado would have in stream water flow rights for kayak courses, we'd have said, what, you're crazy! Never happen. Well, it's happened. We fight a lot about it, because they impact upstream users, but they're legal. If you would have told me our largest counties, in terms of our tax valuations for the last 20 years, have been Pitkin and Eagle, because of the value of the second homes. In 1980, there was Mesa County and Garfield County, because that's where the people were. Rio Blanco County had a big assessed value because that's where the oil field was. Today, it's Pitkin, Rio Blanco, and Eagle County is where the second homes are. More recently, it's been gas and oil, and gas development. This is interesting, because at the beginning of my career, we had oil shale boom. Maybe at the end of my career, we might have another oil shale boom, but in between, energy was not much of an issue.

PS: What direction do you see the western water taking in the near future and in the more distant future?

EK: Well, in the near future, let me just talk about Colorado River issues. I think that in the near future, the development of the shortage criteria by the Bureau of Reclamation or the Secretary of the Interior, and the continuing discussions are going to be important. Within Colorado, we're doing what's called the House Bill 1177. It's the Round Table Process and we're trying to figure out how we are going to approach the development of the last increment of Colorado's water. How you develop the first increment of your water supply and the last increment are very different. We're beginning to have those discussions. I think that's important and I think it will set the political stage for a different kind of development. We're going to do things like make sure that the Yampa, White, the main stem of the Colorado, the Gunnison, the San Juans, the Front Range,

they have a little bit left in their pocket so that it is not just first come, first served for the remaining water. In the far term, and I'm an avid reader, somewhat of a climate and hydrology has become my passion, and I really think that there's a likely chance that a climate change, and I'm not necessarily talking about global warming, because the climate has always changed. You look at the paleohydro record, you can see times that were very much drier four or five hundred years ago with good evidence, so I think that the long term, what we're going to see is less water in the river, more disputes because of less water, and ultimately we're going to have to see that the water is going to go to the higher money sources. So along the main stem of the Colorado River, below Lake Mead, you're going to see the irrigated agriculture there go into Phoenix and Tucson as the water supply to Arizona diminishes. You're already seeing that in California now. The Metropolitan Water District is dealing with Palo Verde and San Diego with Imperial Irrigation District and they're reducing agriculture. So in the long run, I see less water in the River. I see more variability, higher highs, lower lows, caused by climate change, and I see a gradual, but steady, progression of water going out of irrigated agriculture into the cities. Both in Colorado and, I think it will happen first in the Lower Basin, but it's going to happen in Colorado as well. Ironically, that cycle will be we developed irrigation projects to establish, to help settle the west, establish firm water supplies, so the people would come here and have farms. This sort of Jeffersonian democracy model, that went to big farms in the 60s and 70s, and now that the people have moved in, and we had the era of extremely wet cycle may be over, we may be back to normal conditions, maybe drier conditions, and we're going to take that water through the marketplace. We're going to take that water out of irrigated agriculture, and move it to towns throughout the Basin. So someday they're going to wonder why did we have irrigated agriculture in the Lower Basin, and they're not going to remember that it was to encourage the settlement of Arizona.

PS: If we don't have any more irrigated agriculture, where are we going to get our food products?

EK: Tough question. Mexico, South America, Iowa. I think there'll be some agriculture obviously, but when developers can pay tens of thousands of dollars for an acre-foot of water, and the farmers need that money, and the farmers can only afford to pay tens or hundreds of dollars for that same acre-foot, as long as you have a free market economy, water is going to flow uphill to money.

PS: I've heard that saying, and yet it's those big water projects that were started by the farmers. In Arizona, it was Salt River Project and the Gunnison Tunnel Project. Do you think we've seen the end of big water projects like that?

EK: I think we've seen the end of the big water projects, new big water projects. I think we're going to see a change in how those big water projects are operated and who benefits from them. I don't think you're going to see any more major main stem dams on the main stem of the Colorado.

PS: So what sort of big projects do you think we might see then?

EK: You may see some additional water projects for oil shale development in the future. I think we're going to see additional demands for projects that would move water into the Colorado Front Range. We're already dealing with that. I think we're going to see smaller projects to support local development. I think we're an era of small, before the Bureau of Reclamation, the big Bureau of Reclamation, back to small because that's what local communities can afford.

PS: The long time appropriation doctrine, first in time, first in right, do you think that's going to survive the future demands of drought and population growth?

EK: The short answer is no, I don't think it will survive. To some folks, that may be a little bit of an outlandish statement, but as we get closer and closer to limits....I think the appropriation doctrine, at least in Colorado, worked well when

there was plenty of water. When there were three ranchers on a stream, and in an average year, there was enough water for two of them, then a wet year and all three of them had plenty of water, dry year only one had enough water, so one would be the senior, but in reality what was happening was the three ranchers were always working together. The appropriation doctrine, first in time, first in right, has worked well to get us here but as Colorado approaches its full development, I'm not sure it's going to work. I think we're seeing that and that's why we're having our Round Table process, the House Bill 1177, Colorado Intrastate Compact Process. Russ George, who's the Department of Natural Resources director and sort of the father of this process, said that he was reading "Silver Fox of the Rockies" about Delph Carpenter. Carpenter's objective was to make sure that the appropriation doctrine did not apply to Colorado on the interstate allocation of water. In other words, those large farming districts in southern Arizona and California didn't have a senior right to uses in Colorado. So they recognized in the 20s that the appropriation doctrine was not the right mechanism to develop Colorado water among seven states. I think we're reaching that same conclusion within Colorado now. We're not going to change people's water rights that exist but when we talk about how we are going to use that remaining 255,000 acre-feet or whatever it is, how are we going to use that remaining water. We're going to replace a strict appropriation doctrine with something that comes out of these intrastate compact negotiations.

PS: That also seems that's applied legal precedent, water law with all the Indian water rights.

EK: Indian water rights are water rights that have a priority, but they're administered within the state as well. You've got to remember the 1922 Compact. Its goal was to not apply the appropriation doctrine between the states, and if the Compact were to ever fall apart, or be legally challenged, and you had to fall back on an appropriation doctrine with seven states, it would be a mess. Early in the 1900s, a case called Colorado v. Kansas on the Arkansas

River, and a case on the North Platte and the South Platte, the U.S. Supreme Court said that where you have states that both have appropriation doctrines, and you don't have an interstate compact, you don't have any other allocation appropriation, that the interstate application of the prior appropriation doctrine is a way to do an equitable apportionment of waters between states of the same stream. That's what bothered Delph Carpenter and everyone else. They didn't want to see the application of the appropriation doctrine on an interstate basis, so that 's why we have the various compacts, including the Rio Grande, the Colorado River Compact and the Upper Colorado River Compact.

PS: In Arizona, Indian water rights are a huge issue.

EK: Colorado has Indian tribes in the southwest, the Mountain Utes and the Southern Utes. But in our district, Indian water rights are not a big deal.

PS: Recreation and environmental uses of water that have been introduced into water law. Do you think there are other issues that may come up?

EK: I think water quality is another issue. It's been simmering under the surface for many years. In the past, we've said that water quality won't stop a project or won't change the way it's operated, but I think that's wrong. I think we're going to see major operational decisions with existing projects based on maintaining or improving water quality, especially if the supply diminishes. The salts don't diminish; the supply does. It means higher TDS levels. Maintaining water quality is going to be a big major issue. In the Platte River, we're looking at things like very trace pharmaceuticals in the water and can you treat those? Nitrates, from agricultural products. I think it's partly because of technology. 20 years ago we didn't have the testing to come up with some of the things we know are in the water today. Especially downstream of big water treatment plants or wastewater treatment plants like the Denver system.

PS: How do you think Colorado can most fairly allocate this remaining water?

EK: We need to have the equivalent of compacts among the major basins and the east slope. The Intrastate Compact House Bill 1177 process is the way I see it. A lot of people were skeptical of it, like all new legislation. It will change the way we're doing business, and it's going to take time, but I see it as the way to go.

PS: Are you involved in those Round Tables?

EK: We are. Many of our Board members and staff are on the Round Tables. I'm the Governor's appointee to the Interbasin Compact Commission. As manager, I don't want to be on Gunnison or one of the individual round tables, because we have four different Colorado River round tables. We try to support all of them. It's a grass roots process that hopefully will build public support for the kinds of decisions we need to make to utilize the last increment of water we have.

PS: How are the Round Tables working? Are people really participating?

EK: It depends on the Basin. A good example, Gunnison Basin, where water issues are very important, good turnout, good agendas, people don't want to miss the meetings. They have some healthy debates down there. I think the Colorado is a little slower, but it's picking up as well. The White and Yampa, there's not as much of a consumptive use issue. There's no big projects up there, but they're starting to look at what energy development can do. The Front Range round tables, the Arkansas, my goodness! You've got transmountain diversions into the Arkansas, diversions out of the Arkansas, you've got agricultural conversions, you've got recreation, you've got big cities, Colorado Springs vs. all the smaller communities. They have 70 people there and they don't miss a meeting.

PS: How's that going to work? Is each Round Table going to write a report?

EK: Yes, it's called a needs assessment. They'll do their needs assessments and the state has provided money for that. Once those needs assessments are done, we're going to figure out how we can meet those needs. And when I say needs, it's not just consumptive use. In the Gunnison, the Colorado, and many of the other basins, their needs are water quality and recreation.

PS: Then do all these needs assessments reports go to the Capitol?

EK: The Interstate Compact Commission and the Director of Compact Negotiations which is going to be our DNR, and it's currently Russ George, but we're in an election so who it will be in January, nobody knows. They're going to say how do we put all these puzzle pieces together in a statewide picture. The River District will have a role on that. We've already got our four Colorado River Basins together and talked about common issues. The Water Conservation Board will have a role. The Interbasin Compact Commission will have a role.

PS: So do you think it will be a whole new plan for Colorado water?

EK: It will be a different way of thinking, and there will be some compacts or agreements that look like compacts that have to go the State Legislature for approval.

PS: The 1922 Compact seems to be the one everything is based on. Do you think it should be reopened and renegotiated?

EK: It's far from perfect, but trying to live within that compact, in my view, is better than all of the other alternatives. The problems with the Compact, and there are many, how do you deal with the Mexican Treaty obligation of the Upper and Lower Basin states. There are many different views on that. How do you

deal with the fact that Nevada ended up with 300,000 acre-feet, not from the '22 Compact, but from the Boulder Canyon Act. In the 1930s they thought that was a steal and today it's not sufficient. They're having to go to groundwater, and 150 miles north of Las Vegas, creating problems there. We're going to have to learn how to make changes to the Compact that need to be made within the framework of the Compact. Rather than throw it away and start over again, how do we modify it to meet our current needs? I like the idea of the modification because it keep people at the table and civil. The good thing about the Compact is nobody wants to litigate it because what they might lose in litigation might be more than they can gain. It's my understanding that the U.S. Supreme Court is very reluctant to change compacts. They simply treat a compact as a contract between the states and the federal government, if appropriate, and they're saying the way to change a contract is not to go to court and say I don't like this contract I signed, it's to renegotiate it. So my view of renegotiation of the Compact is everyone would get their instructions from their local legislatures to go into these compact negotiations and get more water. Well, their problem is less water, or not enough.

PS: What accomplishment relating to Colorado water issues are you proudest of in the time you've been here?

EK: I'm proudest of two of them. One is the Wolford Mountain Agreement, a complex set of agreements we reached with Denver and the local cities and communities to build this project. The second one I'm proud about is the recovery program, Endangered Species Recovery Program. This worked, no train wrecks, no forgotten permits. When you look at where we are, compared to the Platte, the Rio Grande, and many other basins throughout the west, we're blessed. We did it because we had a recovery program and many water users at the time didn't like the idea that we were giving in to the environmental community and to the federal agencies by providing resources to recover the fish. Today they look at it and ask how they can duplicate our program.

PS: Are there any things you would have done differently?

EK: Yes, there are. I think we made some engineering mistakes. On Taylor Draw, we put the reservoir in the wrong location. Now we can't fix that. We didn't listen. We knew we had the information that if we moved it about ten miles upstream, we could have built a reservoir that was three times as big, for the same amount of money, but the politics said closer is better. I also believe that if we could do it over again, the Upper Basin States should have coupled the surplus and shortage criteria together, instead of doing them separately. We had surplus criteria developed in the late 1990s, and now we're doing the shortage criteria, and the Upper Basin would have been stronger if we had coupled the two. There are many of those smaller kind of decisions.

PS: Have there been any surprises for you regarding Colorado water issues?

EK: Looking back, it shouldn't be a surprise, but I think the intensity of the current drought is a surprise. The last seven years have been the driest seven years on record. We were very comfortable with water supply assumptions, in terms of how much water we think there is, and those may not be true. When we look forward, we see climate change. When we look back, we see paleohydrology records, reconstructed records based on good science that show conditions were much drier in the past.

PS: Which issues, relating to Colorado's water resources, do you think are most critical today?

EK: The most critical ones today are how to reach compromise between the east and west. How we're going to meet the continuing growth on the Front Range. Douglas County, big areas of south Denver, is relying on groundwater and that groundwater is non-renewable and many people believe they're taking too much groundwater out. They could create a political train wreck in 20 to 30

years if we don't come up with an alternative. Can be conservation, can be agricultural conversions, and I think perhaps some west slope water has to be in that mix.

PS: What about the water issues that face the whole southwest region? How do you see their impact on Colorado's water?

EK: We're pretty insulated because of the '22 and '48 compacts. We still have some growth. I think the big issue that's facing the southwest region is what's going to happen to the water supply with climate change? If the globe continues to warm, what is it going to mean? It could mean more rain, but more rain isn't necessarily good, because snow is our biggest reservoir, and if we get more rain and less snow, we're going to see less stream flows. If we get a temperature increase of one or two degrees, that can offset an increase in precipitation by 15 to 20% because of the vegetation. The longer growing season, hotter weather. The climate is going to be the big issue in the future.

PS: I noticed on your website about Union Park Reservoir.

EK: Union Park was a proposal, transmountain diversion out of the Gunnison. I think it's dead now. It's been to the courts many times. We've won every round. We can't let our guard down. We just don't think it's a good project for the west slope. We're not anti-transmountain diversion. We're anti-transmountain diversion where we don't have a say in how it's being built and operated. This was one of those projects.

PS: What were the grounds that you managed to defeat it?

EK: They were fairly technical, in terms of they were seeking to use Taylor Park Reservoir, a federal reservoir that belongs to the Uncompahgre Valley Water Users without their permission. They were ignoring existing water rights

that belonged to the Upper Gunnison Water Conservancy District and they just assumed that they had better uses for that water than the current users of that water and the court said no, you can't do that. The court found there really wasn't any water there available for them to take. It was all spoken for.

PS: We're going to be interviewing Justice Gregory Hobbs. Has he been involved at all in this case?

EK: Yes, he obviously has been involved in the more recent cases. He's a great person.

PS: What advice do you have for the people who are operating the Colorado water resources today?

EK: My advice is you need to open your mind. The future may not look like the past. We get stuck on looking at the last 25, 30, 40, 50 years. We assume that because the water conditions we've had in the last 50 years are going to continue on infinitum into the future. That may not be the case. In fact, I don't think it will be.