

WATER FOR LOS ANGELES

Gerald W. Jones

Interviewed by Andrew D. Basiago

Completed under the auspices
of the
Oral History Program
University of California
Los Angeles

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Photograph: Gerald W. Jones in mid-1940s, resident engineer on major pipeline construction, Los Angeles City Department of Water and Power (photo courtesy of Mr. Jones).

BIOGRAPHICAL SUMMARY

PERSONAL HISTORY:

Born: September 30, 1911.

Education: Graceland College, Lamoni, Iowa; University of Southern California, Los Angeles.

Residence: Laguna Hills, California.

CAREER WITH LOS ANGELES CITY DEPARTMENT OF WATER AND POWER:

Laborer and other nonengineering employment, 1929-37.

Engineering positions, 1937-43.

Resident engineer on major pipeline construction, 1943-50.

Engineer in charge of public works coordination, 1950-54.

Executive staff engineer, 1954-60.

Senior waterworks engineer in charge of water distribution design, 1960-64.

Assistant engineer of the Los Angeles Aqueduct, 1964-66.

Assistant engineer in charge of water operating division, 1966-70.

Engineer in charge of water operating division, 1970-73.

PROFESSIONAL AND SOCIAL MEMBERSHIPS:

American Water Works Association

American Society of Civil Engineers

Community Chest, district chairman

Optimists International

Water and Power Speakers Club

INTERVIEW HISTORY

INTERVIEWER:

Andrew D. Basiago, Interviewer, UCLA Oral History Program. B.A., History, UCLA.

TIME AND SETTING OF INTERVIEW:

Place: Jones's home in Laguna Hills, California.

Dates: October 3, 17, 1985.

Time of day, length of sessions, and total number of hours recorded: Both sessions began at nine in the morning and lasted three hours. A total of six hours of conversation was recorded.

Persons present during interview: Jones and Basiago.

CONDUCT OF INTERVIEW:

This oral history is one in a series with retired long-time employees of the Department of Water and Power, City of Los Angeles, and individuals in the Office of the City Attorney for Water and Power. Duane L. Georgeson, Assistant General Manager-Water, Department of Water and Power, selected individuals to be interviewed after consulting with key members of his staff.

In preparing for the interview, Basiago consulted sources in the DWP's municipal reference department and in the Water Resources Center Archives at UCLA. He looked at in-house material, including DWP memoranda and the employee magazine *Intake*. In addition, he also read several academic histories and reviewed *Los Angeles Times* articles dating from 1913 to the present.

Although the interview begins with a discussion of Jones's early life and career at the DWP, the bulk of the interview is not organized chronologically. Instead, it moves back and forth between memories of DWP leaders and discussions of issues. Topics covered include William Mul-

holland, Joseph Barlow Lippincott, the 1971 Sylmar earthquake, the DWP and the city government, litigation, and technical aspects of water supply.

EDITING:

George Hodak, editorial assistant, edited the interview. He checked the transcript against the tape recordings, edited for punctuation, paragraphing, and spelling, and verified proper names. Words and phrases inserted by the editor have been bracketed.

In October 1986 the edited transcript was sent to Jones, who reviewed and approved it. He made some corrections and additions and returned the manuscript in November of the same year.

Teresa Barnett, editor, prepared the front matter. Richard Cándida Smith, principal editor, prepared the index.

SUPPORTING DOCUMENTS:

The original tape recordings of the interview are in the university archives and are available under the regulations governing the use of permanent noncurrent records of the university. Records relating to the interview are located in the office of the UCLA Oral History Program.

TAPE NUMBER: I, SIDE ONE

OCTOBER 3, 1985

BASIAGO: Why don't we start by talking about what it was like to come out to Los Angeles from Missouri and planning to be a journalist and getting caught up in the young [Los Angeles City] Department of Water and Power.

JONES: I thought perhaps we would start there because of the biased viewpoint, if you wish, which comes with somebody who came from an entirely different part of the country and was unaware of the importance of water in Southern California upon his arrival. I got here in the early part of August of 1929, and like most midwestern kids I had always taken water for granted because it was always there. I came from a country where rainfall was plentiful and everything was always green, and everybody had their own pump. Public water supplies were used mostly for the quenching of fires or for bathing, and people would drink the water from their own wells. They didn't drink public supplies too much. I came to California because I was enamored, as everybody was, of what was going on in the great West, and California was a magic name. So I had always looked forward to coming to Hollywood. I don't know whether it was because of the name itself or what, but I expected when we arrived in Southern California that it would be like a Garden of Eden. Everybody would have banana trees and orange trees growing all around them, and I could visualize people sitting on patios with big Spanish, loose-sleeved shirts.

We entered the San Fernando Valley--I was riding with my brother [David S. Jones] and his family--and we entered the San Fernando Valley coming from the north. We had just come down over the Grapevine from Bakersfield, and it was exceedingly hot. All the eastern part of the San Fernando Valley at that

time was planted either with such things as peaches and apricots, or vineyards, or nothing. And many of the things most in evidence were the big, broad, sandy washes and the dried brush--very much as you see in any unoccupied part of Southern California. It broke my heart, because I thought I was coming to a Garden of Eden and I had come to a desert. Every little while you would see where someone had built a house, and there would be a little patch of green in front of it so vivid in color it would almost hurt your eyes. And everybody was extremely aware of water and its importance--of what it had done. Of course, at that time all of the western part of San Fernando Valley was farmland, and they grew citrus and barley and alfalfa and all these big crops. The eastern part of the valley, which was mostly sandy from the alluvial washes, the outflow from the San Gabriels [San Gabriel Mountains], was given over to vineyards and peach trees and things of that kind. At the time of year that I arrived, it was all searing brown and all the harvest was past, and it looked like a very uninviting place to be.

So I cast around for something to do. I still had in the back of my mind eventually becoming a journalist and going into journalism, but the only thing I had to offer was unskilled labor. So I worked at some short jobs of construction. I left a job working in a restaurant, and I tried looking for restaurant work here and got turned down, for which I have been grateful ever since. Finally, I was down in my brother's blacksmith shop. He was working for the Department of Water and Power as a foreman of a blacksmith shop, and so exceedingly happy. The esprit de corps in that yard was exceedingly happy. These people were enamored of their position. They felt like they were important and doing something important, and that attracted me.

BASIAGO: Where was the shop located?

JONES: The shop was located in what was then the southerly portion of Van

Nuys. There was a big pipe organ factory right there, and right behind it lay the central yards for the water system in the San Fernando Valley. I was down in his shop and one of the men came in off a well rig looking for an additional laborer. They used to have what they called well drillers' helpers, and there were two assigned to every rig. This fellow's name was Elmer August Adolph Buss, and he was looking for a laborer, because he had lost one. In those days foremen in the field were able to hire and fire laborers because laborers had no civil service standing--they were common items. He was looking for a man, and my brother said, "How about my brother here? He has just come out from the Midwest." Elmer took off his glasses and he looked me up and down. He said, "I think you're too damned young and too damned light." In those days I had a lot of cheek. I was six foot one, I weighed 190 pounds, and I thought I was a pretty good man. So I looked him up and down and I said, "I think I can handle you and your load both." It struck his funny bone and he laughed and he said, "Okay, kid, I'll see you on the job on Monday morning. I'll give you three days. You either cut the buck or you go down the road. Is that understood?" "Yes, sir, that's understood."

So I showed up on Monday morning, and as it turned out, there was a fine mist of rain falling. This well was on the south side of Vanowen Boulevard, just easterly of Tujunga Avenue. It's known as Vanowen Well No. 16. It was getting pretty near completion. Well, I was out there early, so I was the first one on the job, but I had to run my windshield wipers all the way out. This seemed strange in a way, because everything had been so hot and dry, and this was not really a rainstorm. But I sat out there and waited for the rest of the crew to show up. Pretty soon the other helper came in. He looked at me and didn't say anything and opened the toolhouse door and started carrying tools out to the rig. I called to him and said, "What are you doing?" He said, "I'm hauling the

tools out to the rig. What does it look like I'm doing?" And I said, "You know, we're not very bright back in Missouri, but we know enough to stay in out of the rain." He said, "This isn't rain. It's just a high fog." That was my first introduction to the so-called high fog in Southern California.

The rig was an old ironworks well rig with a large 40-horsepower, single-piston engine with five-foot flywheels. We proceeded to take all the tools out to the rig and then get the rig started and running, so when the boss pulled in-- He pulled in in his little Model T pickup, got out, walked directly to the rig and pulled the hoisting lever. We took the bar out of the tools and the cover off the well, and we were drilling. In those days the help always arrived first and had everything all set and ready to go. We didn't know anything about overtime. Our time started, and I got hired on at \$4.00 a day. Common laborers in the trenches were only paid \$3.85, so I got fifteen cents a day more because this was semiskilled.

BASIAGO: How did that compare with other jobs at that time in that area?

JONES: Very favorably.

BASIAGO: Very good money in it?

JONES: Yeah. Labor paid anywhere from twenty-five cents to fifty cents an hour, and the foreman made \$8.00 a day, \$8.00 and some cents. I don't know how they got that. I think it was \$8.09 or something, which was about a dollar an hour, and that was excellent wages. One of the things that happened in Los Angeles was that the fathers were very, very wise when they wrote the city charter of 1925. They put in there an item that required the city to pay wages at least equal to that paid in private industry. It was a very, very wise decision, because--as much as people sometimes, not understanding, complained about it--they were able to recruit the very top-notch people to work because they had comparable wages. It had been the practice in the Middle West and in some of

the older cities to try to get the best they could, but they were so miserable in their pay that they wound up always with the lowest talent in the world. Consequently, municipal employees got a bad name in the East and the Middle West for that reason. The only people that they recruited were the people that couldn't get a job anywhere else--they were paid so poorly.

So we started drilling. And I found it fascinating right from the beginning, because nobody knew what the next "scow" load--that's what we called this in the California method of drilling--would bring up. A scow consisted of a long tubular piece of pipe with a hardened face around the bottom, which acted as a bit, and a clapper in the bottom. So that when you went into unconsolidated alluvial material, as you dropped the weight of this down, this clapper opened up and the water and whatever fine material that was in there went up into the tube. And as you pulled up in the air, it brought the clapper down and created a suction below it. So that not only did the outside edge of the bit loosen the material, but the suction pulled it loose and made it available, so that when we came down to the next drop, it also went up, and you could feel the difference in the cable. If you watch well drillers using California methods, you see them always hanging onto the cable. They can tell from the feel of that cable what's going on down below, at least I think they can. And when the scow was loaded and you wanted to get it full, but not enough to have a rock go over the top, then you pulled it up and we had means of dumping it out into a sump hole and evaluating it. The driller came out and looked at what he considered to be the median size of the gravel, and he entered it into his logbook and the location and type of material it was, always looking for a change in formations.

All of that material where we were drilling was the alluvial outwash from the San Gabriel Mountains, and of course it was in descending order of coarseness as the energy of the carrying water had dropped [it]. So there were places

where the fans or alluvial fans coalesced and there would be thick layers of clay which were just lenses. They didn't blanket the whole valley, they were just a lens of clay, but if they were large enough, when you broke through those, the difference in pressure would cause the sand and gravel to heave up on you. You had to watch very carefully. But the main thing that concerned me right at that time-- I was fascinated with the work, but the physical requirement was enough to where I didn't know if I was going to make it to three days or not. The lightest thing on the job was a four-pound hammer, and it was not unusual at all to handle loads weighing as much as 350 pounds.

BASIAGO: Individually?

JONES: Yeah.

BASIAGO: Like what would weigh that heavy?

JONES: Well, you'd get something that maybe would be twice that heavy; there would be two of you to carry it. We had the solid rod, for instance, that we sometimes put on immediately to add weight to the scow. It wasn't at all unusual for a man to handle that himself, and it maybe weighed 400 pounds. He'd pick it up and carry it over somewhere and drop it, because you hurried anytime your rig wasn't drilling; you hurried because you wanted to get down there and make footages. This was what it was all about. You didn't fiddle around.

BASIAGO: You were racing to get deeper and deeper?

JONES: Oh, yeah, well, you keep all your time occupied in doing constructive work, instead of fiddling around cleaning out sump holes and so forth. So you dumped that scow and got it back in the hole and got to drilling as quick as you could, and then moved over and cleaned out the sump hole. We worked there for quite a little while, and we got to the bottom. And here I would like to insert at this point a little bit about Mr. [William] Mulholland. We'll come back to him at another time.

BASIAGO: Well, why don't we hit on old personalities you met in early years?

JONES: All right.

BASIAGO: Let's start with Mr. Mulholland. When did you first meet him, and is it true you became almost somewhat of a valet to him?

JONES: No.

BASIAGO: Well, how did you first meet him?

JONES: Well, what happened was he had stepped down as chief engineer and general manager of the Bureau of Water Works and Supply, following the tragedy of the San Francisquito [or Saint Francis] Dam failure, but he was kept on in a consulting capacity in an office with a secretary. But he loved to come out in the field. The man who was the boss of our section at that time--we were a section of the old pumping plants and reservoirs division--was a man by the name of D. Arnold Lane. The "Old Chief," as we called Mr. Mulholland, looked upon Arnold Lane almost as he did his son. And so every morning he would wander over to Lane's office, and if he [Lane] was coming to see us, the old man would come with him. Although I knew at that time very little of the background history of the aqueduct, I did know that the Old Chief was held in extreme awe by everybody. And he came to the job with Lane probably a couple of times a week. He always wore a high, wing-tipped collar and a very formal tie. He smoked his cigar, from which he neglected to dump the ashes, and I was always nervous for fear he was going to burn his shirt or something from those ashes falling. He had broken considerably physically by the time I knew him and he would come to the job--he shuffled quite a bit. He held his head very high, and learned everybody's name and he spoke to them.

BASIAGO: Was he on a first name basis?

JONES: Yes. I, of course, referred to him as Mr. Mulholland, but he called me Gerry. And it was interesting to note that my boss, Buss, had a twin brother,

and he was also a well driller. He, Elmer--the one I worked for--was very, very fair skinned, and his brother was just the opposite. He was just as dark complected as can be, had a black beard, black hair. Elmer had just golden blond hair and light beard. Otherwise they looked alike as two peas in a pod--the heads the same shape, eyes the same shape, mouth square.

BASIAGO: What was the brother's name?

JONES: Victor William Frank [Buss]. This was a German family, and they always had three different names. The point is Mr. Mulholland always referred to them as the clean one and the dirty one.

The fact of the matter is that anybody that worked on those old rigs was dirty as hell, because the wall casing that we used, called stovepipe casing, was hard red steel, and all of it was coated with a hard red coating. You picked these up-- And as I recall it, I think those joints weighed 140 pounds each. I could be mistaken, maybe it was a little more than that, but this is right off the top of my mind. The three-foot section-- You picked them up and you threw them up on there. The way they were made was one was an outer casing and one was an inner casing. That's why they called it a stovepipe, because under the California method of drilling you kept your casing right on bottom at all times. You kept pressure on the jacks to hold that down there so that as you sucked up the material you took out a minimum of material and so that there were no big holes or caves around. So everybody was covered with that mud and clay and whatever else was around.

Mulholland would come out, and he would always walk up and say, "Buss, how deep are you?" And he'd say, for example, "Four hundred eighty-five feet, chief." "Mmm, that's deep enough. Shut her down." We would immediately just throw out the drilling lever, pull in the hoisting lever, step up the motor, and here we came. We'd get to top, dump the scow and let it back down. And I'd

put the bar through the jars and let it rest on top of the casing, go shut off the motor, take our shovels and start cleaning out the sump hole. He would ask a few more questions and he'd nod his head again, and he and Lane would get in the car and take off. Well, I would always run out into the road and watch them until they were out of sight. When they were out of sight, I gave the guys the high sign. We started up the motor, pulled out the bar, and went on drilling again, [laughter] because we knew where we wanted to land. We wanted to get through the material we were in and land that thing in clay, so that it would be stable. Then we would cement off the bottom and drill a little head of the casing and make a ball and fill that with concrete so we had a good solid base.

BASIAGO: So what you are saying is that really, technically, even the well drillers knew what they wanted and what to do, rather than Mr. Mulholland?

JONES: Well, we'd had other wells drilled along here, and we knew pretty much what we were going to run into. We didn't decide on our own, but we knew we were going to stop somewhere in that neighborhood. But we weren't going to stop right in the middle of a good yielding gravel strata.

BASIAGO: The reason I ask is that Robert [V.] Phillips mentions that Mr. Mulholland wasn't really held in that much esteem technically, and I was wondering why was he held in so much esteem?

JONES: Leadership.

BASIAGO: It was basically leadership?

JONES: Leadership. As Bob pointed out, he was a so-called self-taught civil engineer. He had his license by virtue of a grandfather clause. And as a technician, he was, as Bob pointed out, he probably was not a great engineering technician. But he had two other things that were absolutely invaluable: he had tremendous judgement. He could take facts and figures and come to the right conclusions quickly, and he did it without a lot of smokescreen. He could

cut right through all the red tape and hoopla and get right to the heart of the matter--and his judgements were sound mostly. Technically, as Bob points out, he probably had fifty men working for him who could exceed him technically. But the other thing was leadership, and he had that charm and self-assurance and all those indefinable qualities that make up leadership, that made men not only like to work for him but eager to do so. This is a gift. People may be able to train themselves and help themselves a little bit, but this is a gift. He had it, and he knew pretty well-- But he was impatient. Because his own insight was so keen, he wanted everybody to get on with things. But he had those indefinable qualities of sound judgement, leadership, self-assurance.

BASIAGO: What are some of the other things you saw in him that you noted in men of accomplishment you've met and worked with?

JONES: I've noticed in my lifetime a lot of things that may seem contradictory in terms of leadership, and men equally effective who had different mannerisms in going about it. But the two things that I've noticed as common to all highly successful men: One of them is a strong, positive, enthusiastic attitude. The second one is tremendous energy. You look at all the men you have known who have been successful, now that energy may not be all physical; it may be a tremendous mental energy drive. But I have observed a lot of very successful men through the years, and these are two things they always have in common. Those are always present, no matter what else may be present. I think what happens is that the sum total of all these gifts that goes into leadership is something that make men who have to work with them, or for them, feel secure and comfortable. These are two things they always have.

BASIAGO: Do you think this constellation of leaders in the early years of the Department of Water and Power were very much like the Founding Fathers or a special group of men like that, that they were untypically--?

JONES: Well, I think that each generation and each change in social structure breeds its own leaders, and they emerge to meet the needs of that time. This was a time of tremendous growth and tremendous optimism. People who believed in themselves, there was a new chance. People had come West looking-- Things had gone into the doldrums in the East and Middle West, and one thing or another. They came out here to a new land and new opportunity, everything growing, everything expanding. What they needed was people who could grasp things by the horns and go forward and not do too much fiddle-faddling around. Those people would have gone nuts if they would be set down in society today, where needed and worthwhile and wonderful projects could be drug out for ten or twelve years and finally maybe even defeated by people who don't know their backsides from a warm stone. Whereas these men were people of accomplishment. Get it done! That's the atmosphere that I came into when I came here.

The [first Los Angeles] Aqueduct was sixteen years old. Only seven or eight years following its completion, we went into the beginning of a dry cycle. Starting with 1915, two years after the advent of the aqueduct, started the greatest annexation growth that anyone had ever seen. From 1915 to 1928 this city grew from about 40 or 50 square miles--I may not be accurate on this term, but very little larger than the original *pueblo*--to 485 square miles, because *everybody* wanted that water. Here was opportunity--people pouring in, railroads bringing more of them every day, everybody looking for opportunity, everybody needing water. It just grew unimaginably, starting with the original 98,000 acres comprising the floor of the San Fernando Valley. So this was the kind of atmosphere I was introduced into here.

I want to go back a little bit. We finished that Well No. 16 and went down and perforated it. What we used to do is follow the logbook and go in there.

And using the driller's judgement as to what he considered the average gravel size, would be the size of the blade that we'd use to perforate it and put these slots in the casing. Then we would surge that well and develop it and pull the fines, the sands and so forth, which would form a self-built screen all around this casing--because we pulled the fine material in and surged it back and forth until we pulled it in and bailed it out. Then we would set a test pump in. Then we would not only pump it, but we would again surge it with that-- Maybe we would pull that down-- As I recall, water was at about the 80-foot level in those days. We'd pull it clear down to maybe 160 feet, then cut it off and let it all rise, then hit it again and pull it down. So we surged it, and when we got so that we were practically getting no more sand, we considered it developed. And then we set the pump and pumped it steadily at different rates in order to plot a production curve in the well.

We had been pumping that well, which was adjacent to the old East Wash on Vanowen [Boulevard]. We'd been pumping it about three days and the boss said to me, "Take a shovel, follow that water down to where it goes across Vineland Avenue. Because cars coming up Vineland might not see it, and they would hit that and wreck and it would be too bad. So see to it. Go down there with the shovel, and if it's getting close, throw up some barriers and divert it off in some other direction." A few years later there was a big gravel pit down there. I suppose I might have diverted it there, but it wasn't there in those days.

But what got me, I was walking down through this peach orchard-- This was early September. All the leaves on the trees were hanging limp, everything hot and burned up. Right along the edge of the water where I followed it down the sandy soil, green grass had sprung up about an inch high, after only three days putting that water on it. Well, I'll tell you, for a homesick Missouri farm boy, who had grown up in a place where it was either winter or unbelievably green, that

did something for me. Here was life. That water made all the difference in life. On one side here was death, and here was life. I didn't just clasp my breast and fall into a faint and say, "Here I found my life's work," but I was terrifically impressed. I had already been impressed by the interest of knowing what's the next scow load going to bring out: Are we going to break through? Are we going to do this? Do that? But that really got to me. It became-- And to everybody in those days, the value of water was immediately apparent wherever you looked. You would see a place like these hillsides off to the south here that look so brown and uneventful, and somebody would build a house up there and here would be a little patch of green. Everybody was keenly aware of what water had meant in those days. They hadn't grown accustomed to it as we have now. We've grown-- Two generations that if they opened the faucet and water didn't run out, they would not know what the hell to do with themselves. And actually that's the only reason we can have a city. Like today, if we were to cut off all the water supplies in Southern California, the place would be abandoned in seven days.

BASIAGO: Let me jump--

JONES: Just think of yourself. Where would you go get a drink?

BASIAGO: Probably a bottled water factory.

JONES: How long would that last?

BASIAGO: As long as I can hold off my competitors.

JONES: Right. [laughter] That wouldn't last long.

BASIAGO: Let's jump way ahead. This is off much more in the future. You wrote an article on a major disaster plan ["The Development of a Major Disaster Plan"], let's say following a war. Assume a nuclear war, because you talk about civil defense. What about the question of sabotage of the water supply? Was that ever an issue? Were things ever done to prevent sabotage?

JONES: Yes, it was given some consideration. But what we figured was, if necessary-- We couldn't find enough people to patrol constantly and guard constantly an aqueduct 232 miles long. We did, during World War II, have a volunteer guard force, and we did have them ready on call so, if necessary, we could put guards at vulnerable points. But in the day-to-day operation, if it appeared so, we would double our patrols and keep in touch.

I did write that major disaster plan. It took me twenty minutes to do it after I got started, and it took me a year to finally come to what we felt we should put into that plan. Because there were a lot of differences of opinion, even amongst the generals of the armed forces and so forth. The first thing that came out was to evacuate the entire Los Angeles Basin. Well, you could imagine. You get people panic-stricken and all of them trying to get out all at once, it would drive you nuts. You'd kill more people in twelve hours than you would kill during the war. So we all floundered around for quite a little bit before we finally came up with what we thought was reasonable. Finally a group of three retired generals came up with what I considered the first sensible plan, and that was that we would take a hard look at what it would be worthwhile for an enemy to take. We weren't going out with a scattergun. They were not going to waste a lot of stuff out in the Mojave Desert for god's sake. So we outlined an area, and then we went from there.

What we developed as far as the water system was concerned was not a series of directives as such, but an outline which would permit everybody to think their way through and react properly at that time. Now, a lot of other people--and I was able to benefit by their mistakes--went through and made this assumption and that assumption and another assumption, and pretty soon they had a document this thick which nobody could read or would read, nor could they keep it with them. So we were determined to get something down that

would be in a little booklet that everybody could slip in their pocket, where they could receive their guidance from that as to what to do. I think it was successful, in that everybody was instructed in the event of a disaster, which they would hear by radio or some other [means]. Everybody was to keep a battery radio in good order at home. Then when this occurred, the first thing they were to do was to look to the security of their family. The second thing was to report to their normal working location, for the reason that all the tools and things that they were used to using would be there.

BASIAGO: This was strictly for the DWP?

JONES: This was for the water system. The supervision and the chain of command would all be in place, and they could report there. In the event they found it impossible to report to their normal location, there was a list of other headquarters where they could check in and let their presence be known, who they were and where they were. Then the water service chief (we always had a designated water service chief) would make his way immediately to the headquarters of the California Disaster Office or wherever their communications center was. And they would get in touch with the state water operating engineer, the regional water operating engineer, and with our own L.A. Water and Power. Then we had several areas around where other cities were involved, and we also had radio communication with them. The only thing we asked of the state was that they furnish that communication. And that's the one thing they wouldn't furnish, so we spent a hell of a lot of money.

But it worked, even as late as 1971, which was twenty years later, after this intense period. When we had that earthquake, the men showed up, rolled out of bed and showed up where they was supposed to show up. It worked like clockwork. The aqueduct was a little bit different. We had a senior foreman at Dry Canyon. We had a headquarters at Mojave, we had a headquarters at

Independence, and we had one minor headquarters at Haiwee. All these fellows were instructed to send a radio car with dual radios to a high point near their location where they could talk to Los Angeles and to their own people. And they did, and it worked.

BASIAGO: And the radio network became operative during the '71 quake.

JONES: Yeah. The radio network became-- Well, it was really indispensable to our normal operations, but in times of disaster it's tremendous. We also learned some things in that 1971 quake, where we added a second crystal, so to speak, to each of our radios, so that everybody in the whole water system could receive from any district. Before, we used to have people that were in the [San Fernando] Valley, and all they had was a crystal so they could pick up their own Valley calls. Then we had the central part of the city and San Pedro on another one.

BASIAGO: Were there a lot of DWP employees who showed up at other places that had been on their list?

JONES: I never did learn, because we immediately began to strip all the other districts and move them. I'm talking now about the 1971 quake, and you are too, I presume.

BASIAGO: Yes.

JONES: We immediately began to strip the other districts and send these people out to the Valley and concentrate them out there. At the height of the recovery out there, I had a thousand men in the field in the San Fernando Valley. That's when we learned about getting these extra crystals in the cars. Because the men we brought from the western district, from San Pedro, and the central district had an entirely different makeup, so we had to send two cars to every field headquarters. We set up field command posts, and we had two radio cars at that command post. We had a plotting of where all of our people

were in that particular district. If it was a West Valley crew, we used the Valley frequency, and if it was a crew from western district or San Pedro or from central district, we used their frequency. But we took care of that: immediately after that we saw to it that all cars had both frequencies. We went through the aqueduct, and a third of its radio communication was tied to power operating. We got that separated out also, because power operating, once it got going, was so busy that we couldn't just jump in. It was all right during just normal operations.

BASIAGO: So after this earthquake you put all water districts on the same radio frequencies, where before they had been on different frequencies?

JONES: Yeah.

BASIAGO: And you split the power frequencies?

JONES: We didn't use the same frequencies, but we put it so they could switch to each of these frequencies.

BASIAGO: We're really jumping ahead here. Just briefly, were there a few other things from your disaster plan that became successfully implemented during the '71 quake? You mentioned the men reporting to the right areas, the radio network--

JONES: I'm trying to think. If you'd like to cut it off a minute and let me think-- [tape recorder off] Well, it all worked, and even to the helping of our neighbors--that was another thing. Sam [Samuel B.] Nelson was a man of great vision. He was terrific. He also, in the pattern of the Old Chief, was able to cut right through and get to the heart of the matter. He used to say to us, in times of disaster he'd say, "Remember all water utilities in Southern California will help each other and go to jail later. We're not going to worry about nit-picking in this business." And that was brilliant, absolutely brilliant. Nearly everybody else we came in contact with wanted to sit down and work out formal

agreements by which they would furnish certain people and we would furnish certain people, and all this stuff. Pretty soon you would have legal documents stretching from here to New York, and nobody would know what the hell they were anyhow. So as Sam put it, he said, "We will all sign a very simple statement," and the water systems of the state of California did that.

BASIAGO: This was after the quake?

JONES: No, this was before. We all signed a very simple statement. That is that in times of disaster we would help each other. That's all it amounted to. That wasn't the exact language, but that's all it amounted to.

BASIAGO: So when you were calling in personnel from other areas, getting assistance after the '71 quake, the L.A. DWP was making deals basically then just on the handshake, right?

JONES: Yeah, we didn't even bother to handshake. For instance, during the quake, San Fernando, all of their wells were inoperative and--

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JONES: In the 1971 earthquake, for example, in the city of San Fernando, all their wells had become inoperative and they had had a lot of pipeline destruction and one thing or another. Well, we had the mission wells operating, which was a group of wells up in the Sylmar Basin, and we had clear water at a hydrant not far from them. Immediately, not only did we fill our own water trucks there, but we set water trucks on every street corner we could up in that area. We got every tanker truck in Southern California, and I had them rigged with spigot outlets so people could line up and get jugs of water. Temporary toilets on about every third corner, so people who were out of water and whose sewers were broken could come over there and--

BASIAGO: Where did you get the toilets from? A construction crew company?

JONES: We had some and then we just scoured Southern California to where we found all these construction companies. There are people who make a business of just renting those, and we got them. It was wonderful the way people responded. For instance, Anheuser-Busch [Inc.] had these big beer trucks where they would haul beer out to the bottling plants and things of that kind. They ran those out there with no charge. They brought them over to our yard, and we equipped them with spigots and filled them with clean water out of the mission wells and put them out there on the corners and set them up at supermarkets and places of that kind with no charge. They offered them free. We paid the construction companies whatever rental was required. But immediately the Board [of Water and Power Commissioners] and the city council took action to waive formalities during this period. We got them wherever we could.

We got the guys on the phone and hustled them, and they were wonderful, they responded beautifully. It worked just about like we had foreseen that it would work. I don't know what would have happened had it been an atomic war scare, but this scare was enough.

BASIAGO: What about terrorist activity? Were there any contingencies considered for some nut poisoning the water?

JONES: There was some thought given to it, but most of it was discredited. It was amazing how many rumors would get started. For instance, I was over reporting to city council one morning as to the progress that had been made, and right when I was there a man came running in the back of the council chambers, his eyes wide open and so forth, and said, "San Fernando Dam has just broken and drowned thousands of people in the Valley." It wasn't true, but those kind of things would get going. We had word that somebody was going to drop a certain amount of poison in the water, but you have to get out a slipstick and realize how much poison that it would take in a reservoir holding 20,000 acre-feet, how much poison it would take to get that to a concentration sufficient to kill somebody. They'd have to be lined up with trucks dumping it in there. We did have some scares. Somebody had climbed up on one of our tanks and threw something in, and we immediately had to shut the tank off and get sanitary boys out to take samples. We did drain the tank, but nobody could find whatever it was they put in there. They had been up there and broken the lid, and we found some empty sacks that looked like they might have had something in them, but we never could detect what it was.

BASIAGO: But generally the water was so vast, and the system, that you'd have to have a major military action to pull the trucks in to start poisoning.

JONES: The dilution is so great, in most instances the only way you could do it would be to hook right up to somebody's service and then get something in.

BASIAGO: Let's go back, before we jump too far ahead, and start discussing some of these other giants whom you worked with in the early years. What do you remember about J.B. [Joseph Barlow] Lippincott?

JONES: J.B. Lippincott, in my view, was the greatest civil engineering mind of his day and I think for many days that followed. He had a wonderful combination. He was highly regarded for his technical knowledge, but the scope of his mind was the thing that fascinated me. Not only was he technically sound, but the wide range of knowledge that he had and the judgement factors that he applied to it. And he was just as full of illustrative stories. He was a man that could take a very, very complex problem and look at it calmly and reduce it to its simplest and lowest common denominator, so to speak. He was fascinating to me. I was a young man. I didn't start to work with him, and I didn't meet him, until 1937, when I had been called into the office to do the most humble of tasks regarding our Glendale-Burbank water rights case [*City of Los Angeles v. City of Glendale*, 23 Cal. 2d 68, (142 Pac. 2d 289)]. Mr. Lippincott was brought in as a consultant. Lippincott and [O.K.] Parker, his partner, had made the original groundwater surveys out in the San Fernando Valley for the old riverbed cases in about 1903 and 1904. He had also used that information for developing the need for the Los Angeles-Owens River Aqueduct [first Los Angeles Aqueduct]. He had been in on every large water project in the western United States. He had formerly been the supervising engineer for the [Federal] Bureau of Reclamation for several western states, and I'm not sure-- I know that it included California, Arizona, and Oregon. I'm not sure what others. He was totally aware of the water situation. One time I saw him stand before an audience of the American Society of Civil Engineers and deliver a paper which he called "Our Great Southwest Water Problem." He stood up in front of this group, with his hands in his pockets, and for forty-five minutes recited the

situation of every area of the great Southwest. He told about the population, the population growth, their principal products, their need for water, the water that they had available now and what would have to be supplied in the future, without a single note and filled that in with anecdotes and stories and things that occurred. He was an amazing man. There was nothing too small to escape his notice or for him to make some benefit from. It was in observing him that I came to the conclusion--that a lot of wise people have done before me, but I had never heard of--that nothing you ever learn is ever wasted. Sooner or later you're going to find it useful. This man was tremendous. Well, nobody would think of insulting his dignity. He was not an aloof man. He was warm and friendly, and he was looking for the right answers. I remember one day-- Again, you remember, I was just a young man.

BASIAGO: How old were you then?

JONES: Oh, about twenty-six, I guess, something of that sort. He came sweeping into my office and sat down opposite me, and he looked at me and he says, "Gerry, why the hell is it that over in the Simi Valley they can grow lima beans, and right across the Simi Hills, in the western part of the San Fernando Valley, they will not mature? Now, why is that?" What the hell do I know about it? But this is typical of him. He would ask everybody until he finally got an answer. He wanted to know. Another thing he did that was-- He was methodical in his way. He carried a little looseleaf notebook, and in his office he had a looseleaf file just that size, a little three-by-five book. He would ask you a question, and he would meticulously write down the answer. Of course, he was catching you out in the field, and you were answering right off the top of your head. He would go back and put that in that file. It might be two years later we'd be going over maybe the same ground, he would get that file out and put it in his book, and he would go down the line and ask you that same question.

You would give him an answer, and he'd say, "Now, that's different than what you told me in 1937. Why do you suppose that is?" [laughter] He wasn't trying to do you any dirt, he wanted to know. Had something happened in the meantime, something changed? He was so full of interesting stories, and he was a devotee of Mulholland.

BASIAGO: Do you remember any of the stories he told from the earliest years there, during the surveying up in Owens Valley or building the aqueduct?

JONES: Well, that's specific. I remember two stories that he told on Mulholland. One time we were traveling out over the Colorado River. I had the honor of driving him and Lucius K. Chase and Arnold Lane out over the Colorado River in 1938, and he was telling us a story. We went into a place to eat. I believe it was in Needles. I'm not sure, but I think it was Needles. And JB said, "You know, I came out here in 1924 with Mulholland and we came into this very place to eat." He said the Old Chief (Bill, as he called him) always had a twinkle in his eye, and he was always looking for something for a little laugh. So he said, "We came in and sat down for breakfast and our waiter came over, and he [Mulholland] said, "I want a stack of square hotcakes." The waiter looked at him kind of funny and said, "I don't know, sir." "Certainly you must have a chef that can make square hotcakes," and he insisted. And so they didn't think much about it, and they were all just having a little chuckle. The waiter went back to the chef and the chef said, "Oh, he's pulling your leg," and he gave him a stack of round cakes and took them out. Mulholland looked at him and he said, "Did I not distinctly tell you that I wanted square cakes? Take these back and get square cakes." The waiter went back and insisted that he have square cakes, and the chef got mad and took off his apron and threw it down, threw his cleaver clear across the kitchen and then quit. [laughter]

Mulholland was always full of stories, and so was JB. I do remember one

story. I heard a hundred of them, but how can I remember them? But this one delighted me. I'd been chosen to drive Mr. Lippincott and a fellow by the name of Albert Chandler from San Francisco out to some phase of the work we were doing for the Glendale-Burbank case. I've forgotten where we had been, maybe out to Pirtle Cut, but at any rate, on the way back, JB was telling some of his stories. It probably had to do with the old West Los Angeles Water Company that had developed Pirtle Cut in the first place. If you want to shut that off I'll tell you about it, and maybe then you'll know whether you want to include it or not. [tape recorder off]

BASIAGO: Tell me what the Pirtle Cut is.

JONES: Well, the Pirtle Cut was actually a cut through an earthquake fault. The tail end of the Raymond Fault, which is most prominent in the San Gabriel Valley and Pasadena in particular, extended on through the Verdugo Mountains and out into the San Fernando Valley. This particular piece of it was along Verdugo Avenue at about California Street. It interrupted, because the grinding of the fault had made an impenetrable rock flower and interrupted the normal southeasterly flow of groundwater from the Tujunga washes, that would normally have come down toward the river, and brought this groundwater to the surface. Prior to 1904, the old West Los Angeles Water Company bought this particular forty acres, and maybe they had bought that off a Pirtle. I don't know where the name Pirtle came from. But they went up there and put in an infiltration gallery, but not an infiltration gallery as we knew it, but an open trench with steel post and sheeting that went in but left gaps so that this water would rise up and flow. Then they put it in an enclosed, pressurized pipe, brought it down to the river and across it, and around Griffith Park and out through the Los Feliz gap, and carried it all the way out to West Los Angeles, where they cut through this earthquake fault, the impervious material. It got its name as Pirtle Cut. It

developed quite an amount of water out there, as I recall maybe as high as 40 second-feet at one time.

He [Lippincott] was probably reciting some of that history and what had occurred, with Albert Chandler, who had known Lippincott since they were both in the Bureau of Reclamation. Albert Chandler originally had been a civil engineer, hydraulic engineer, and had worked for the USGS [United States Geological Survey] and had written several hydrology papers. He later turned to the law and was our consulting attorney on the water rights cases of the city of Los Angeles versus Glendale and Burbank. So these two old men had been friends for probably forty years, I'm guessing. He always referred to Albert Chandler as Bert, and Bert always referred to him by his middle name, which was Barlow. So he said, "Barlow, what you should do at this stage in life is turn a lot of this work over to the younger men in your organization, and when these stories occur to you, call in Miss Watt and dictate them to her, because otherwise they're going to be lost." JB turned around and he looked straight ahead, and I was watching him in the rearview mirror. (He had gotten a little palsy by that time.) Finally he turned around and he said, "God damn it, Bert, are you intimating that I'm going to die?" Of course, we laughed like hell, and that was the end of it. But that was the way it was. He said, "You intimating that I'm going to die?" [laughter]

When I was driving him out over the Colorado River-- As I say, he had been supervising engineer for the Bureau of Reclamation in the Department of the Interior. So he was looking forward to seeing Hoover Dam--it was nearing completion. We pulled up to the headquarters in Boulder City [Nevada], and JB sent in his card. And we waited out in the car, and this was in the days before air-conditioning in cars. Windows all rolled down and trying to keep cool, and we waited and waited. Finally, one of the office aides came out and handed us

four tickets which entitled us to a free trip through Hoover Dam. I will never forget JB. He sat and he looked at that ticket for a minute, and he said, "Well, I'll be goddamned, he saved me two bits." [laughter] Typical.

We were on that same trip, we stopped in El Centro, and we'd been drinking grapefruit juice all the way down the line. Lippincott had a grapefruit orchard out in the San Fernando Valley, and so did Chase. So we'd been drinking a lot of it. I kind of looked after these fellows a bit on this trip, as much as I dared, because these were such great men of such notorious [reputations]. I kind of listened and kept my mouth shut mostly, unless I thought that they were getting themselves into trouble, then I would assert myself. At any rate, we were down in El Centro and we got on the elevator to go down to dinner. We were thirsty and looking forward to getting more of that good grapefruit juice. Lippincott had been telling some story or another of something he had tried and hadn't worked out very well--he was always laughing at his own mistakes. We were laughing and then quiet for a moment, and he turned around and put his arms around my shoulder and he said, "Gerry boy, I wish I could pass on to you all the damned fool mistakes I've made in my life." At the moment, I didn't appreciate his meaning. I thought I had done pretty well on my own: I was making as many mistakes as anybody. But before the evening was over, it began to sink in. Then I thought what a wonderful blessing and what a wonderful gift from an old man to a young one. The actual desire, the very wish that he could save me the pain and aches and so forth that he'd had. He was a wonderful man.

Then we went on down to-- To show you the caliber of these fellows: We crossed over into Arizona-- We were going to Yuma, we crossed over. We had some of these grapefruit that we had gotten in the Imperial Valley, and so we got to the border and they said, "Do you have any fruit?" "Yes, we've got these grapefruit." He says, "I'll take those, please." Chase was a senior partner of

Chase, Barnes, and Chase, which is still a very prominent group of attorneys in Los Angeles. He took the fellow on and he said, "Now, look," and told him who he was and said, "I own a grapefruit grove out in the San Fernando Valley, and I would like to point out to you that these grapefruit are absolutely perfect. They're undiseased and there's nothing they can--" He picked them up and went over his rigamarole with them, and he kept emphasizing that he was an attorney and he knew what he was talking about, as well as being a grapefruit grower. Finally the fellow at long last said, "Okay, keep them. Go on through." We rolled up the windows and started on, and Chase said, "If that man worked for the state of California, I would have his job." [laughter] This was typical of these kind of guys; they had something going on all the time.

Then we went on down to Yuma. The first thing we did was look up a man by the name of E. F. Sanguinetti. E. F. Sanguinetti was the leading political light of Yuma at that time, married to a very fine Mexican woman. They had a big old rambling adobe house. So we got into Yuma and JB immediately called him up, and we were invited out to the house. We had been on the desert all day, hot and dry, and we got into this adobe and it was cool and wonderful. We no more than got seated and here came his wife with two huge pitchers of grapefruit juice, all chilled with sweat running down the outside of them, and sat them down. Oh boy, our tongues were cracked and hanging out, and she poured those into tall glasses. We each took one of those and slugged it down, and we drank about two of them before we stopped to taste. By that time it was too late. They were spiked to the gills by something. I don't know what, probably tequila. Boy, we were cross-eyed. I'll never forget Sanguinetti, typical Italian, he said, "Ah, but the best part, gentlemen, is there is more." We weren't up to much more. By that time we were seeing double already. To show you what an effect it had, by this time it's getting on to about eight or nine o'clock at

night. We hadn't had anything to eat, and it was dark. JB said, "I'll tell you what, let's go up to the Yuma Mesa. I want to see those groves. Gerry, you drive." Good god, I was already seeing double everything. I didn't know whether I wanted to drive or not, but he said to drive. So I got a grip on myself and got in, and we started out. We came to an intersecting roadway--I don't remember where it was now--but headed up toward the mesa. I had to enter that against traffic. I looked everywhere, and it looked to me like cars were running three abreast, but I blinked my eyes. Finally I shoved off, and we got up there on top of the Yuma Mesa. And there were these acres and acres and acres and acres of grapefruit, these huge old Arizona grapefruit that would be eight or ten inches across and maybe five inches thick. We got out and we went wandering around these grapefruit orchards in the dark. Finally the owner--we got pretty close to a house--the owner came out, his dogs came out, flashed a light on us and discovered who we were. JB called out to him, and we identified ourselves, and, oh, he was the very soul of hospitality. He invited us into his house and selected extra large grapefruit he had around (big as dinner plates) and loaded us up with them, and we finally went back to our hotel and gave them to the waiter and had him write our names on them and put them in the icebox for breakfast. Then we got something to eat. Oh, but what a life!

All the time, JB was telling us stories about what happened along this stretch of the river and that stretch of the river and how much water they required. We went over a dirt road and drove up the easterly side of the Colorado River from Yuma to Quartzsite. These were just two-track dirt roads meandering through the brush. Every once in a while we'd come to a place where the roads divided, and we had no idea which way to go, so we asked somebody. There was a fellow on a tractor over there, and we asked him which way to go.

He got off the tractor and he came over and he said, "You fellows ain't from around here, huh?" "No, we're not, but we want to go to Quartzsite and then cross the river and go on up to Parker Dam and so forth." "Well," he said, "I'll tell you what. You take this left-hand turn and you go up a piece, and then you take the right split on that one, and from there on there ain't nothing from hyar to thar." That just struck JB's funny bone and he didn't quit laughing till we got-- Every little bit he'd say, "He was right. There ain't nothing from hyar to thar."

BASIAGO: How about Harvey A. Van Norman? We really don't read a lot about what he was like personally.

JONES: Yeah, you don't. I'll back into the history and explain to you a little bit how HA was.

BASIAGO: Okay.

JONES: He was a man that JB always said, "I would rather go on a trip with Harvey Van Norman than anybody I know. Because he is absolutely tireless and has the best sense of humor of anybody I was ever around." He was a big man, and like other fellows of that kind he was a man of convictions. He had no great engineering background, but what he did have, he knew very well. Like Mulholland, he knew how to get to the heart of matters. He knew how to use other people's brains and other people's efforts. Going clear back, he was superintendent of construction on the Mojave division of the original Los Angeles Aqueduct. He was a big man. My guess is that he was about six foot three, maybe four, and weighed maybe 260 pounds. Broad-shouldered, big large head, and a great shock of curly hair, square Dutchman's face, and a twinkle in his eye. He was another of these men that I spoke of [who had] tireless energy, both physical and mentally.

He always had a constructive outlook on things. When he was superintendent up in Mojave during the building of the aqueduct, he ran into a little labor

relations problem. Mulholland was tightfisted and he didn't spend any money that didn't have to be spent. Up there in Mojave is where they kept a major portion of the horses and mules that were used along the line during the construction, so the place was alive with flies. They must have had two hundred head of mules up there. They had a little labor problem. They had a little group of the laborers who waited on Mr. Van Norman one morning, and they said, "We realize that money's close, but for god's sake, Van, can't you spend a little money for some screens for the latrines? Men go up there in the morning and flies crawl all over them, and it's a miserable experience. You have to expose a part of your body, and the flies are so thick they just crawl all over you." Van thought about it a bit and he said, "Well, that's easily solved. All you fellows got to do is change your habits. You see to it that you go up there during mealtime. You won't have any problems." They said, "What do you mean, go up there at mealtime?" He said, "Mealtime, flies are all down at the cook's shack. You'll have no problem at all." Laughed like hell. That probably solved the whole thing. He didn't go into it very much deeper.

Years later, he had that same knack for, even more so than Mulholland, that he knew people by their first names. He would come down the ditch-- I remember one time I was working in Hollywood in the ditch. This was the fall of 1930. The Mono job had shut down. We wrecked our rig and they sent us down. I was sent out to Hollywood to work in the ditch, and I was assigned to a service crew and a sideline crew. Temporarily, they put me with the bull gang over there and I was working in the ditch. You lay off three shovel lengths and take your pick and you dig this stuff. Van Norman came down the line, and there were a lot of old aqueduct stiffs working on this, guys that he'd known working on the aqueduct. "Well, hello, Henry." "Hi ya, John." These guys here swinging their picks and shovels. Up with their hands, you know, and they called him

Van and he called them John or Henry or whatever their nicknames were. And he was that way throughout.

I could tell you a lot of stories about him. I remember when I was working in the office, maybe late thirties or early forties, but still while the construction work was going on on the revetment work along the Los Angeles River. The lower end of the Crystal Springs gallery had been exposed for the last several hundred feet where it broke out of the river over into Griffith Park. Our sanitary engineer had forbidden us to use that water because of the contamination. It was exposed to surface water which could go directly in, and we, at that time, didn't have the facilities to properly sanitize it. This bothered Van Norman because this was 40 second-feet of good water and we needed it and it was right at home. So he called me up. I was the only one in the office and here I was a lowly hydrographer's aid, I think. (I don't believe I'd gotten into engineering status yet.) He said, "Gerry, would you come over to my office?" I said, "Yes, sir." I would go over there with great fear and trembling, because this is like being called to God's throne, so to speak. Then I came in and he said, "Sit down a minute, will you." I go, "Yep." He told me about this situation that existed out there. And he said, "Now, what occurs to me is that if we would pinch that gate at the lower end of Crystal Springs and put a back pressure on that pipe so that the water would flow out of the cracks at this exposed portion, rather than allowing an influent seepage, it would be an effluent seepage. We might be able to get it to where no contamination could get in, and perhaps we could use at least 50 percent of that water." He said, "Does that make sense to you?" I said, "It certainly does." "Well then, by god, why don't we do it?" "Yes, sir, we'll get it done right now." This was the kind of man he was. At the top of his profession; here I am a hydrographer's aid. Then he asked me, honestly and sincerely, had he forgotten anything, was there anything that slipped in

there, was there any reason why that wouldn't work? Now, he was familiar with that gallery. He knew when it was installed, installed by another of the characters we'll get to later. But this was the kind of man he was.

He could take your hide off with equal facility. I wasn't present, but my boss was, one morning when he asked one of our division heads, he said, "Would you do so-and-so and so-and-so?" I don't remember now what it was. But the fellow began to squirm and he immediately began to make excuses and, "Do you think this is what we ought to do?" and "Maybe we--" Finally he [Van Norman] turned around to him and said, "Well, now, it's just a small matter. If it's too big for you, I'll handle it myself." [laughter] You see, he was capable of removing your hide as much as he was of building you up, if you got in the wrong place. But he was a wonderful, wonderful man.

The last time I saw him alive, years after he had retired, we were down at the Ross Loos Medical Group. He looked wonderful. He had something wrong with one of his hands, and when I came in--I hadn't seen him--he called to me across the lobby and he said, "Gerry, come on over." I went over and sat down and he said, "How the hell are you?" Well, we sat down and we visited, and he got called in before me. He told me what was wrong with him and what was happening. He went in to see the doctor, and when he came back by he said, "Well, Gerry boy, it's good to see you, take care. I lived through it and you probably will too." And away he went. That's the last time I saw him alive. But this is the kind of man he was. He would meet the mayor with equal aplomb. He called the mayor by his first name, and then he would take the mayor's hide off of him too if he got out of line, just about as easy.

BASIAGO: What do you think of some of the trends in society that tend to discourage men like this from rising to the top or even developing?

JONES: Oh, legal restraints.

BASIAGO: Great daring has been discouraged by litigation.

JONES: One of the things that happened in the city of Los Angeles, and I think it was just a precursor of what was going to happen everywhere-- Both Mulholland and Van Norman, who followed him, were members of the California Club. They had behind them members of the chamber of commerce. They had behind them all the constructive elements from the city of Los Angeles: the leading businessmen, the manufacturers, everything of the sort. They had tremendous backing for whatever they wanted to do through this. And that period of tremendous growth was one of great optimism and great vigor. People were willing to take chances and to do things, because fortunes were made and lost. And there was something exciting about great growth that goes on. So politicians didn't fool with them very much. The people that wrote the 1925 charter took Water and Power away from the jurisdiction of the council and gave them almost autonomous standing. Very wisely so, because in their words, they said a service as vital as this must be removed--this isn't the exact language, but to this effect--must be removed from the day-to-day problems of politics. It has to surmount them and be free from them. So the only hold that the city government had on the Department of Water and Power was that they confirmed-- The Board of Water and Power Commissioners were appointed by the mayor and confirmed by the city council. Two other elements that they maintained control: One of them was land. We couldn't sell or lease or do anything with land without the approval of the mayor and the city council. The [other] one was the establishment of rates; they had to be approved by the council, who were the representatives of all the people. But otherwise, they were to keep their nose out of the business. And Van Norman and Mulholland saw to it that they did. They did it because of the backing they had at the California Club and by leading citizens, as Lucius K. Chase for one. And they

were both members of other prestigious clubs as well, so that they had a good solid political backing, if you want to put it that way. They kept their nose out of politics otherwise.

Now, that wasn't so of Mr. [Ezra F.] Scattergood, but he had a different battle to fight than the water system did. His was a different problem, because in establishing a power system, it was just one of the many competing elements for the provision of energy. This had long been the province of private enterprise, and they weren't about to let a municipality get involved in this if they could help it. And so his problem was entirely different from that of the water system. So he had to get into politics.

But the water system kept politicians in back of their den. One of the things that Mulholland used to say-- During that period of great growth that I was telling you about between 1915 and 1928, when they were just laying pipe like mad all over the place, he'd call the controller nearly every day and he'd say, "How much money we got?" And he [the controller] would say so much. He'd say, "Get it in pipe before the damned politicians get ahold of it." That was before the 1925 change in the charter.

But nowadays, we live in an extremely legalistic, litigationist type of society. Things that were practically the wonder of the world, as recent as my coming to work for the water system, have long since become commonplace. Everybody takes it for granted that when they go in to open the faucet that nice, cold, clean, potable water will come out that's fit to drink--they don't give it a single thought. They don't even hesitate to give it to their babies. And very few people can remember a time in their life when it wasn't there. You don't-- Have you lived in Los Angeles long?

BASIAGO: For about fourteen years.

JONES: Fourteen years. Can you remember a time when you went for a drink

of water and it wasn't there? I didn't think you could. Now they take it as commonplace, and things that need to be done, such as-- And it has to be done in advance. The water supply isn't something that you can develop in six months or a year, even under the best of circumstances. But under our current circumstances, it's almost impossible to get through a major project. We spend our money on everything but getting something done, and to people of my era, it drives you nuts. I'm just so grateful that we've got a group of young men in there who grew up in this era as this was growing up, and they have the patience and so forth to deal with it. This would have given me ulcers on my ulcers if I had been still going. Even my last year there, in 1973, when I was doing everything I could to cut my work force to get it to the most efficient level-- And I had done so, probably eliminating as many as three hundred jobs. Then I found out I had to cut it even further and let important maintenance go by, because they were having to hire engineers to write environmental impact reports. I nearly went up the wall. You find yourself nowadays with a budgeted amount of money to do something, and you find you spent all your money and you're not out of the environmental impact report yet, let alone the suits and every other damned thing that comes along to halt you and so forth.

There's a dozen cases in point, but one of the most recent, for instance, up in Rush Creek in the Mono Basin. Our water right in that has long been settled. We have a protected license from the state to operate and divert that water and so forth. People up there got to screaming about Mono Lake, which again is a dead sea--worthless, absolutely worthless, lifeless. They got screaming about it, and a couple of years ago we had one of those exceedingly wet years, and we had excess water. So they dumped it out of Grant Lake and let it run down to Rush Creek and into Mono Lake. And they managed to raise the level of the lake by about four feet. Last year when it became time to again use that

water--we no longer had any surpluses--we started cutting it down, ready to turn it off. Damned if we didn't get a lawsuit based on some old state law concerning fish and game: that any stream which had native-born trout must be maintained at a certain minimum. Damned knothead judge gave this credence and gave them priority to stop this, and we're now required to dump 17 second-feet of water to waste. Just waste down that creek and dump it into Mono Lake, so somebody can go up there and fish another three or four miles of stream. This to me is outrageous, absolutely outrageous, idiotic. And the people that perpetrated it have about as much vision as that, or they wouldn't do it. They've never been without water, they don't know what it is. Somehow or another, I'd like to take some of these people who are perpetrating this and shut their damned water off or cut it way down to where they had to carry their water in to have a bath, take a glassful to do their teeth. Let them taste what it's like to be without water. Maybe they wouldn't know. But that's the main difference. Our money is wasted, our time is--

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BASIAGO: One way of obviously placating the environmentalists and delivering all the water that's needed would be to recycle it in some ways. What are your views on that?

JONES: It's becoming more and more feasible all the time, and far more acceptable. I still think we're probably fifteen years away from using it as a domestic supply. I think we have the knowledge and the know-how to probably process it to a point to where it could be piped and be used in the home, but I think we have other resources which--

BASIAGO: Do you think there are other resources?

JONES: Yes, and everything will eventually come to the basis of economics. It's like reclaimed seawater, for instance. There will come a day that will be feasible and we will use it, but it's a long ways off. And I think this is true of reclaimed water. But great advances are being made in the reclamation of what they now like to term wastewater, rather than sewage, and they're using it. The Irvine Ranch Water District, for instance, has a processing plant where they're-- I think the last time I checked into it they had about a 15 second-foot capacity. And they use that water on growing crops. There's a little reclamation plant up here where the wastewater from Leisure World is put through a digestion pond and then sold to Irvine Ranch [Water District], and they use it on some of their row crops through there. So this can be done in the city of Los Angeles. They have a reclaimed-water plant that they're using in Griffith Park. Interesting thing was that this whole thing started--as to reclaiming this water for that kind of use--started as an experiment back in the early thirties.

BASIAGO: I was wondering if there hadn't been any historical precedents on this issue of reclaiming.

JONES: I don't know where else it might have been tried, but in the city of Los Angeles, Ray Goudey, under the direction of [Harvey A.] Van Norman, in 1931 I believe it was--I wouldn't want to be tied down to these dates--developed a small reclamation plant out at the headworks on the river. What he did was to take some water out of the Burbank outfall sewer, bring it in there, and pump it up there into a hopper, which was up at the top. You climbed the ladder and go up and look in, and here was all this sewage floating around in there. I won't mention some of the things that were visible. And down at the other end, where this proceeded through about four or five steps, down maybe thirty or forty feet away there was a little trickle of clear water coming out and there was a tin cup hanging there. This was before [William] Mulholland passed away, so it had to be about 1931 or '32. Mulholland went out there with Van Norman and Goudey and some of the other fellows. (Remind me to tell you a story about Van Norman and Goudey.) Goudey immediately took him on a tour, and when he got to the lower end, he took the tin cup and swished it out and put it under the water and took a drink. The reason I know about this was that I was sent up there as a laborer to clean out the little spreading basins that they had built to accommodate the discharge. They took the effluent from this treatment plant and spread it on the sands and let it sink in so it could be reclaimed. At any rate, he passed this tin cup around and everybody had a drink. They offered it to the Old Chief, and the Old Chief said, "God, no. The Good Lord put those two apertures as far apart as he could get them, and I figured he had a reason." He wouldn't drink it. But it did prove that it was feasible to take ordinary domestic sewage and make it acceptable.

But nowadays we've been through a series of what I term fictitious frights.

As one of our most eminent waterworks people stated, the worst thing that has happened to the waterworks industry in this decade is the discovery of the billion. We now have such sophisticated equipment that we can detect--or think we can--to parts as few as a trillion. And now they get down to a billion, and everybody gets scared to death because they discovered something that's been there for a hundred years and never hurt anybody, but now they've found it. So we're going through a very trying period at the moment. I use the example of trichlorethylene. The Environmental Protection Agency has set the maximum acceptable amount of trichlorethylene in drinking water at five parts per billion. To bring that somewhere into our own experience, if you started with a vat of water and a teaspoon and you started dipping water at one spoonful a second and kept that up 24 hours a day, 7 days a week, 30 days a month, 365 days a year, [then] every 6.2 years you would get one teaspoonful. I can't think of anything that would be so deadly as to be harmful to anybody at that dilution. And still that's what we're required to do. Out in the San Gabriel Valley and the San Fernando Valley-- I think San Gabriel alone has shut down forty-seven wells, and I forget how many in the San Fernando Valley, which had to be replaced with water that costs fully three times as much to be delivered and costs the citizens out there millions and millions of dollars--to serve no useful purpose. We're going through that right at the moment with a lot of things. I had the honor of having presented a paper called "The Ten Commandments for a Reliable Water System"--I think it was 1982 or thereabouts--and my tenth commandment was to be patient and long-suffering with EQA [Environmental Quality Act], EPA [Environmental Protection Agency], OSHA [Occupational Safety and Health Administration], for in due course the worm would turn and a thread of sanity would return to the earth. I believe that, but the American Water Works Association national office didn't want to handle the sale of this

"Ten Commandments" because it said we have a lot of people that are members that are involved in EPA and EQA. They asked me if I wanted to change it and I said no. They said, "If you would delete that, we would be happy to publish it and handle the sales." And I said, "No, I don't care if it's sold or not." And that's the way I felt, and I still feel that way.

BASIAGO: What were some of the cases of alleged toxicity that you think were way overstated?

JONES: Well, that I just gave you.

BASIAGO: Trichlorethylene.

JONES: Yeah, and there's others. I can't think of them right at the moment.

That's an outstanding example that--

BASIAGO: Do you think it's possible that some of these are highly toxic at very, very small concentrations because they're synthetic?

JONES: I don't know. I'm ignorant about those things. I mean, it's gone off and left me so I don't know. But with such volatile things as-- That's why I used trichlorethylene. Next to ether, it's perhaps one of the most volatile substances there is. The slightest aeration and it's gone. The EPA and the EQA both admit they never found any at anybody's faucet, but if they find it at a wellhead, then they shut the well down. And what hardly anybody realizes is that at 5 parts per billion-- For many years we used parts per million, or milligrams per liter. Well, at 5 parts per billion is actually .0005 parts per million. Even nitrates with a safety factor of about 5 are set at 40 parts per million. You can see about-- Who can visualize a billion? Now, I've been dealing with water units all my life, and I can deal with acre-feet. I can deal with a million gallons, because I can visualize a million gallon tank. But to visualize a thousand million gallon tanks-- How many would that be in each? That would be thirty-five tanks, thirty-three tanks in each direction. My god, who can visualize it?

BASIAGO: In only one gallon--

JONES: One gallon out of all that; five, if it's five parts. It's ridiculous, it's absolutely ridiculous. Now, I admit that if I were held in responsible charge for what the maximum pollution would be, I would want to be as cautious as all hell, believe me. But I also would want to keep it within the realm of reality that people could visualize and understand. And whether they think they do or not, nobody understands a part per billion or a part per trillion. Too bad. You can't, can you?

BASIAGO: No.

JONES: And I think this is a shame. It throws a lot of blocks, and it's costing water users a tremendous amount of money.

BASIAGO: You mentioned that a lot of the challenging things confronting most creative people are getting tied up in litigation. What was your involvement in the San Fernando water rights litigation?

JONES: I've been in two cases. First one was the city of Los Angeles versus the cities of Glendale and Burbank [*City of Los Angeles v. City of Glendale*, 23 Cal. 2d 68, (142 Pac. 2d 289)], and the second one was the city of Los Angeles versus the city of San Fernando and others [*City of Los Angeles v. City of San Fernando*, 14 Cal. 3d 199 (537 Pac. 2d 1250, 123 Cal. Rptr. 1)], which included, again, Glendale, Burbank, San Fernando, a lot of private people, and so forth. This was over the water rights to the San Fernando Valley, which we claimed under the *pueblo* right, which had been supported by the [United States] Supreme Court throughout all the years. A peculiar thing about water rights, and that is that the only way that they can be maintained is for them to be put to a reasonable, beneficial use. And every injunction against water use always has some limitation, or did in the past. So, water being as precious as it is in California, Southern California especially, every injunction against its use

usually had some sort of a limit, and the old riverbed cases--which started back in the late 1890s and carried through to about 1905--in those cases the injunction was broken when water flowed continuously down to and through the Los Angeles River narrows at Figueroa Street. After the advent of the [first] Los Angeles Aqueduct, and during that period until we developed to the state where we needed it all, and all we could get, there were times when water did actually flow down to and through the narrows. We had no legal grounds upon which to attack Glendale and Burbank for using that amount of water. So at any rate, a drought had started in 1922. I have to be careful now to restrict myself to your question, because the drought that began in 1922 triggered a hell of a lot of activity on a lot of fronts. But this bottomed out in about 1931, and the time had come for us to firmly establish our rights. Glendale and Burbank were now claiming that they had a prescriptive right to the water, that we had abandoned it and that we could not legally reclaim-- Or they would agree to the old *pueblo* right that all the native waters belonged to the city of Los Angeles. But a new element was involved because we had now introduced imported waters to the San Fernando Valley, at least 25 percent of which would filter down into the groundwater and be again available. They claimed that this was free percolating water and could be appropriated because they were now wild and vagrant waters, and that we had lost ownership once we sold it. We had to show, of course, that we intended all along to recover it, and this type of thing.

Well, I was going to night school at [U]SC [University of Southern California] and still working as a laborer. I had done a little hydrographic work. They decided to bring me in from the field and put me in charge of the files, the Glendale-Burbank case. I didn't even know what a file was in that sense. But I set about it, and here was a great table full of stuff. Everybody would get the stuff in and read it, and they would put it up there. So in order to get this

straightened out and classified and put into some kind of order, I had to read it all. Within about six month's time--a year's time, at the most--I found that I knew more about the case of all sides than anybody involved in it. I'm not talking about expertise, merely what everybody was doing and so forth. So having that pretty well straightened out, they then assigned me to not only maintaining the records that had been developed, but also to creating needed records and to getting copies to all persons involved. They all had exact copies.

BASIAGO: What kind of records were being maintained?

JONES: Maps, for instance, which would show the groundwater contours and the capacity, above a certain level, in the San Fernando Valley under the easterly 26,000 acres, which were mostly what we had developed. It would be all this stuff that was developed by the different consultants, the reports that they had put in, and a lot of historical data. I had to go back and go through all-- For instance, in order to show the intent of the city of Los Angeles to recapture the waters that were sold for irrigation, I had to go clear back into the old archives that were long ago put down in the icehouse, dig them all out and go through board actions, memorandums, letters, reports, the old annual reports. My god, I went through annual reports going clear back to 1905. I went through reports of [Joseph Barlow] Lippincott and [O.K.] Parker and the reports of A.L. Sonderegger and the reports of-- We had another group of Quinton, Code, and Hamlin. They had put out an extensive report and recommendations on the sales of the surplus waters of the Los Angeles Aqueduct. It took a lot of research, and that's exciting, as you know. You get on the trail of something. I went through the annual reports of the old pumping plants and reservoir division, and their comments on the conditions of the groundwater. Then every time we had a meeting of consultants, I kept the minutes and provided every-

body with a copy. Finally the lawyers on both sides, in their wisdom, decided in order to save court time, they would come to a stipulated agreement on every item possible. So these were gone over, one at a time, and as they did, I developed those as these people developed them. I made them a matter of record and saw that each member, both engineers and attorneys for all parties involved, got a copy. And there was also a copy available, when and if we went to trial, for the judge. I made sure that everybody had exactly the same copy on exactly the same page, and I sent it to them, and if they had anything to change-- I sent it to them and required them to send me the correlated copy back, so when we got into court and went over the stipulations of the agreement, there was nobody reading from a different page from anybody else. That isn't my nature to do that. I'm sloppy as hell about filing. I hate it. I like to get on to what I'm doing. But that was my job, and I did it.

BASIAGO: What did you think of the relative arguments in the case? Pitting the city's historical right, the Spanish grant when it was just a *pueblo*, against essentially what you might call squatter's rights or local use rights?

JONES: Well, in that particular case, we really had no great difficulty. There was so much precedent that actually we ran into very little problem. The judge found no room to deny us because he would have been flying in the face of the Supreme Court of the United States, as well as the Supreme Court of California. We only had one item that was under litigation that we lost, and that was the introduction into the valley--which was very slight--of waters from the Metropolitan Water District [of Southern California]. To that extent, Glendale and Burbank were allowed to recapture any waters that were used for irrigation and returned to the groundwater, in proportion to the share that they had paid for. In other words, if this water was sold in the cities of Burbank and Glendale and was used for irrigation and returned to the groundwater body in an area

where it could be recaptured, they were entitled to recapture their fair share, which amounted to nothing but a principle. Otherwise, all the items under litigation were found in favor of the city of Los Angeles.

BASIAGO: Did you ever run into Walt Disney during this? I understand that the Disney people were--

JONES: In the second litigation, the *City of Los Angeles versus San Fernando et al*, yes, I ran into-- I didn't run across Walt personally, but he had an engineer that I worked with. You know, I can't recall his name. I'm sorry, I can't. He was a splendid fellow. But their contention was that they should not be stopped from pumping, because all they took from the water was temperature. They did pollute it to that extent. See, the groundwater there is about a steady 58 degrees year round. It seldom varies. They take that and pump it through their different film processes and so forth--it was unpolluted--and then dump it down a return well to the groundwater. Their argument was that there was no consumptive use, it was merely a temperature rise. Oh, there were all kind of arguments there. This was also maintained by one of the plastics companies out in the Valley, Knickerbocker Plastics. They had been wasting it, but they claimed they would drill wells and that they would use the water and then return it. But Glendale and Burbank and San Fernando were not given any additional--

BASIAGO: Was one of the benefits of that case that the right to water remained with the municipality and the city, against private concerns moving in on it?

JONES: Right, right, right. One of the things that hinged on--and there was a great argument, and it got historians all involved--was the *pueblo* right itself. They went back and challenged it, although it had long been settled by our own [California] Supreme Court. They went clear back into history and tried to show that the *pueblo* right was not nearly as total as it had been found by California

courts. They cited the treatment it had been given in Texas and the way it had been treated in New Mexico and other areas. They didn't envision all of the things that we envisioned, but-- They didn't get away with it. They tried, but-- Good old try, [but] the *pueblo* right is still sound.

BASIAGO: What was the supreme court precedent? I thought one was established in this case. What was the earlier precedent that was important in that case?

JONES: I'm going to have to think hard to remember the name of the case. It was 140-some defendants. The city of Los Angeles versus-- I'll be damned, I can't think of it. It will come to me directly.

But the Pomeroy and Hooker case [*City of Los Angeles v. Pomeroy*, 124 Cal. 597 (57 Pac. 585)] really was the one that tied the groundwaters of the San Fernando Valley to the surface waters of the Los Angeles River. What they were claiming in those early riverbed cases-- And this one was Pomeroy and Hooker, and that's the site of what's now Griffith Park. I'll never forget, in researching this, I found William Mulholland's comment in his annual report. He said they were now engaged in this case of Pomeroy and Hooker, and he said, "The plaintiffs contend that they are not diverting water from the Los Angeles River, while pumping from its obvious source, which shows the tremendous difference between twiddledee-dee and twiddledee-dum." This is in a formal report he wrote to the board.

So it was true in this series of cases, and finally it culminated in the one that I can't think of the name of at the moment [*City of Los Angeles v. Hunter*, 156 Cal. 603 (105 Pac. 755)]. It went to the Supreme Court of the United States, and they found that the Los Angeles River was in fact the surface expression of the groundwater body, and that they were part and parcel, and that the *pueblo* right, by virtue of its acceptance by the first legislature of California, was the

ruling California law. They also ruled that--and again sustained--that an injunction could not prevail against a city because of the negligence of one of its officers. You see, these people claimed that we ought to be enjoined, because we had not kept up a certain amount of pumping and so forth. That was squelched from that line of reasoning. Why should two million people be penalized because some officer happened to be negligent? So therefore a public body, the court reasoned, should not be penalized for that effect, and the injunction would not hold.

BASIAGO: It sounds like you're fairly knowledgeable on water rights litigation. Are there any precedents that have been established in that body of law that disturb you in terms of their future implications? [pause] Not in the San Fernando Valley?

JONES: That's pretty sound. We do have it under a water master, and it's pretty well kept track of. So the one ruling that takes place, or did, in all water law, is that no amount of water shall be allowed to waste. What I wonder is why the people in the Mono Basin have been able to create so much havoc, and obviously the water is running to waste. As far as I'm concerned, dumping fresh water into Mono Lake is tantamount to pumping oxygen into the tombs of the pharaohs.

BASIAGO: That's because it's a saline body.

JONES: Yeah. It's several times more saline than the ocean. The only life that it would sustain is a brine shrimp, which is a microscopic little creature.

Seagulls will eat it, but seagulls, my god, can eat carbolic acid. They have brass stomachs. I would be more sympathetic if seagulls were an endangered species, but all it is is a convenience to them. Hell, they're not endangered. Mono Lake just happens to be a convenience, and it's there. All of these people forget. They talk about the recreational-- There's no recreation on Mono

Lake. It ate all the rivets out of every boat they've put on there. It's pretty to see. If you come up out of Yosemite [National] Park and come up there to the summit and look down and see this great body of water, it is pretty. Who the hell-- Nobody ever stops there. Nobody goes over there and has a picnic. You never see any livestock go down there and drink at the water's edge. To me, it's absolutely criminal. I wonder why it hasn't been attacked on that basis. But what the Audubon Society does and the Friends of the Earth and the Sierra Club, they maintain that this brine shrimp is an endangered species, and this is also a part of the flyway, north-south flyway, for wild birds and is where they stop to rest. Well, they forget that we added a reservoir of 186,000 acre-feet just up the pike a few miles, and Grant Lake, another 50,000 acre-feet, was furnished just off to one side. Far more places with live fish and food and things to preserve and protect these birds on the flyway than this old dead lake. It's all forgotten, and why courts will listen, and juries award, on these kind of things, I don't know. It's a type of mentality I don't understand. But I want you to know, I'm prejudiced as all hell. I'm in favor of water supply for people. Now, if you go up around Mono Lake-- Have you ever been up there?

BASIAGO: Yeah.

JONES: You drive all around. You know how barren it is and how rocky that soil is, how miserable it is. Then turn and look at this. Look at my backyard. Look at all the greenery you saw as you came. Drive through Los Angeles. Trees and lawns and a full ecology, and people living in a-- And if we turned it all back, the Mono Basin, it would still look the same damned way. The people in the Owens Valley are living better than they ever lived in their lives. If we were to suddenly pick up and walk out of there and leave them all that damned water, they would all go down the drain in two years. And still the damned fools come up there and fight like hell. I just don't understand it. But as you know,

I'm prejudiced.

BASIAGO: Let's turn to the last part of today's session. Let's cover some technological developments or incidents. First of all, let me just recite them first. The first one, I'm interested in how Mr. Mulholland reinflated that portion of the Antelope Valley Siphon that had been crushed. The second is generally how infiltration galleries worked. And the third is how you might have created some advancements in pipe technology, in terms of backfilling with crushed rocks right at the seam there. So why don't we start with that incident. I'm curious about Mulholland's creativity as a water engineer, even though he lacked formal training. Because it sounds pretty clever, what they did.

JONES: Excuse me. Which of those are you referring to? The infiltration galleries?

BASIAGO: No, no, the first one would be the reinflating of the pipe after it had been crushed. First of all, it had been crushed by what? By dynamiting?

JONES: By vacuum.

BASIAGO: Some reports mention that it might have been sabotaged.

JONES: Oh, the only sabotage possible would have been if somebody blocked the air valve. I'm not sure about how that happened, but it was a vacuum that collapsed the pipe. What we're speaking of is what's known as the Antelope [Valley] Siphon. It's a very low-head siphon. The water had been carried in a reinforced concrete pipe, at both ends, to where it dipped into the valley and crossed the--

BASIAGO: Low-head siphon means what?

JONES: Well, under low pressure. We refer to *head* as the feet of height of the column of water which produces the pressure. In waterworks terminology, we speak of the feet of head. I suppose that comes really from irrigation, because they use so much head in there to force water out in those fields. But

it's common hydrologic terminology. And when it got so that the engineers-- And we had some dandies, had some of the best technical engineers in the United States that designed that aqueduct. They stayed out of steel as much as possible, for the reason that there were no steel plants on the coast. The Panama Canal had not been completed. Any steel of any magnitude had to be shipped clear around the Horn and brought in. The Los Angeles Harbor had not been developed; most of it was a mud flat. So they tried to keep all the steel they could to a minimum. If it came across on the railroad, the costs were almost prohibitive. But they did have local cement plants, and to bring in reinforcing rod wasn't too heavy, but the heavy steel pipe itself was. So they ran this reinforced concrete down to where they felt it wouldn't stand the pressure anymore. Then they went to riveted steel pipe, and they used a very thin-walled pipe.

They built it across this long, shallow portion of the valley. When they went to drain--they had filled the aqueduct and it was operating--when they went to drain it, somebody had blocked off the air valve or they hadn't put in an adequate air valve or something. I don't know. At least the air valve failed. It wasn't a valve as such, it was just an opening into the aqueduct. And as they drained this, the weight of the falling water created a vacuum, and it being a very thin-walled pipe--even though it had about maybe 120-degree bedding underneath it--it just collapsed. The top half just collapsed into the lower. Mulholland immediately-- People were despairing, and they were going to take the whole thing out and start over again. And he said, "Well, water pressure collapsed it. Let's let water pressure restore it." So that's what they did. They turned the water back in and gradually brought it up to full pressure, and it did finally come back into a semblance of round. When I say a semblance of round, I mean it just like that. It never did come back to its full, perfect round-

ness, but it did get up to where it functioned all right.

Years later, when I had charge of the southerly two hundred miles of the aqueduct, we replaced a good portion of that, right at its deepest point in the valley, to put in a heavier pipe which would span the state aqueduct [California Aqueduct], which would pass under it as an open channel at that point. I've forgotten how many feet of pipe we put in there, but we used a good heavy steel pipe with ring girders. We went in and cut out that old pipe, and soon as we cut both ends loose-- We didn't put any stulls in there. We hooked onto it with a hoist and lifted it out of there and then laid it over on the ground, and the whole darn thing collapsed. The fact of the matter is, had it not had at least 120-degree bedding, it would have collapsed of its own weight if it were empty. What they had done before, [they] had stulled this; by stulled, you know what I mean, they put in props inside to hold it round until it was filled and operating. Then when they put in the bedding, that gave it enough lateral support so that when they did drain it, it wouldn't collapse. But laid out on a flat surface, it wouldn't stand of its own weight--it's a very thin-walled pipe. But he was right. He put the pressure back on the thin-walled pipe, and it did come back into enough round to serve. We went in some years later and mortar-lined it. I went in to observe the mortar lining, and I made a comment to the fellows there that it was the first time I've ever seen a triangular pipe. That was a great exaggeration. We did mortar-line it successfully.

BASIAGO: How would you remove props inside the pipe once the water is running? First, how would you get in there? Second, how would you free it from the inertia of the water?

JONES: In those days they didn't bother to take them out.

BASIAGO: Just left them in there.

JONES: Left them in there. They could possibly have got the whole thing up to

at least 120-degree bedding before and perhaps removed some of them at that time. But it wouldn't stand by itself if it weren't studded.

BASIAGO: It must have been very thin.

JONES: Yes, it was.

BASIAGO: About 1/16 of an inch?

JONES: Oh, it was perhaps 3/16. But when you consider it was 120 inches in diameter, that's 10 feet, and that's a lot of weight. So if they put in enough lateral support--which they could do with this 120-degree bedding--it would hold. But lay it right out where it had a point bedding, the whole thing would collapse. It's too heavy for its own resistance.

BASIAGO: The second thing, the infiltration galleries, you were working on those very early, right, with Van Norman?

JONES: Yes, they had been installed prior to my arrival. This again, I was intrigued with the solutions. They could only work in the river a very short time in the summertime. So they laid out the line and grade for this infiltration gallery, and this was a concoction where-- I don't know who first came up with it, but what they did was lay a cast invert in the bottom of the ditch, and they left it with open joints and laid this in about three-foot sections. And then they came in with a cast biscuit that they set on top, just sat it up there--it also had open joints--and then they backfilled that with sand and gravel on the top. So the water flowing in the river would come down through the natural sands and gravels of the river, would sink down in there, and would go into these open joints. Once it was inside, it would flow freely out the lower end, and then it was brought on contour from Crystal Springs, for instance, along the contour line of the Santa Monica Mountains and brought to an in-town reservoir at Buena Vista originally. Later it was also dumped into the-- What's the name of that park out there?

BASIAGO: Elysian Park?

JONES: Yeah, later it was dumped into the Elysian Reservoir, which was built on the high side of Figueroa Street above the old Buena Vista Reservoir. They put the Crystal Springs-- What they did, they just laid the conduit up the river until they dried it up, and when they got to the place where they dried up all the summer flow of the river, they quit. That was its capacity. So then that picked up most of the water which had come down underground in what had been the old East Wash and came into a confluence with the Los Angeles River where the Verdugo Wash comes in, what they called then "the great bend." Maybe you're aware of where it is. Just above the [Los Angeles] Zoo, as you drive out Riverside Drive, you cross the Verdugo Wash, and then you make a rather sharp left turn. That was where they picked up all of those waters. Then they went on up to the headworks, which was on up the stream. They put in three different galleries there. The deep gallery-- And this interested me tremendously, it was one of the most interesting to me. This was one of Mulholland's creations. They went up there and sunk a shaft in the decomposed granite mountain. This was at a point where the river, historically, had changed courses. The river had come down and hit this decomposed granite bluff, shifted and went clear out in a big horseshoe bend, and came back down at about Crystal Springs, over at the Verdugo Wash, that area. So they went in there, at that point, and they dug a shaft, I've forgotten how deep, and then they tunneled right under this bedrock--kept a good survey line of where they were tunneling--tunneled right out under that bedrock up the river, to the point where it caved in, then they stopped. They came back and they laid a surface survey line over the tunnel and drilled a series of twenty-one wells along that line from the surface down into that tunnel. Before they hit the tunnel, they perforated and developed these wells so that they were good producers. Then [they] went

back and drilled through into the top of the tunnel, twenty-one of them up this line. Then they went on the other side of the hill and tunneled on grade at an elevation that permitted the groundwater to flow by gravity through the tunnel, through Griffith Park, and into Rowena, Ivanhoe, and Silver Lake reservoirs.

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BASIAGO: So the natural flow of the water--

JONES: Flowed down over this line of wells which were capped and concreted below the surface. The water seeped down through a natural filtration bed, went in the perforations, dropped into the tunnel, came and, because of the difference in elevation, rose up in the shaft, flowed by gravity out through that tunnel and down around the contour, through the Los Feliz Gap, and over into Rowena Reservoir and Ivanhoe Reservoir and Silver Lake [Reservoir]. They all flowed by gravity. That was the old deep gallery, and it yielded a considerable flow of water and drained--where that central wash came in and had its impact of the groundwaters coming down--drained that whole area. Then they put in what they called the T-2 line. Now, that was some surveyor's designation; out of a number of surveys he had made, this was called Survey T-2. Well, that started at an adjacent-- They built another receiving chamber, and they went right up the river at a shallow depth--like they had at Crystal Springs--and went right on up the line and crossed over, until they dried up the river. Then they put in what was called a short gallery. It was a little deeper than the T-2 line but dumped into the same shaft. It was never very successful. It was a large-diameter pipe, and I've been through it. I've been through them all, for that matter. Then finally, they brought the waters from Pirtle Cut that I mentioned earlier, which had been developed. We put a gallery in up there and replaced the old open flume that had been put in and brought that down and dumped that into the upper end of the T-2 line. So there were actually three galleries that dumped in there, and all of that water flowed by gravity into what we knew as

the 448 system, which is the Silver Lake system. It developed 40 or 50 second-feet the year around, another 30 or 40 second-feet down at Crystal Springs. So we were taking about 80 second-feet out of there by gravity, no pumping at all.

The Chief [Mulholland] was always interested in this. So with this tremendous growth that was taking place immediately after the arrival of the aqueduct, he began to see that with as much water as we were bringing from the north, we had to do something about storing it, carrying it over, and being able to use it to its maximum. All the San Fernando Valley was irrigation water, and it was seasonal. Here we had the whole winter's flow, and a good percentage of it wasn't being used because irrigation was not practiced in wintertime. So he got interested in the groundwater, very active-- Well, he always had been, but he got interested in the idea of artificially storing water underground.

That's where D.A. [Arnold] Lane came in. In 1922, he assigned Lane to do a groundwater study, not only of the San Fernando Valley, but the south coast also. But principally in the Valley, looking toward using the gravels under the easterly 26,000 acres of the Valley as storage for surplus waters of the Los Angeles Aqueduct. So Lane immediately picked up all of the old wells that he could, wells that had been measured by [Joseph Barlow] Lippincott and Parker. With the exception of the wells which were right along the river itself, all of these were pit wells. In those days, they had no deep-well turbine pumps and they pumped by digging a pit down to the water level and putting a centrifugal pump on a platform at that point. They could boost water, but they couldn't lift it. They could only lift what they could pull by vacuum, which was a matter practically of about twenty-four feet--theoretically, it's thirty-two feet--but about twenty-four feet. A lot of these, after the deep-well turbine had come into existence, had pipes put in and the well backfilled, and then they used the

turbine pump. Lane went through and established locations and started measuring a lot of these wells all over the Valley. He started getting an organization of hydrographers to do this, got out a survey crew to establish the elevation of a reference point on the well so the measurement of the distance to water would establish the elevation of the surface of groundwater. Then he began plotting groundwater contours which showed the migration of the water in the Valley. Principally, they were interested in the easterly portion, which was a loose granitic formation that was capable of high capacity, both for absorption and relinquishment. The westerly part of the Valley was a secondary alluvium which was tight, interstices were few, and was slow to accept water and even slower to yield it to gravity. So while we did do some development there, the great interest--as far as the groundwater storage was concerned--lay in that easterly 26,000 acres in the Valley.

Lane was working on this, and in 1928, the year before I came to work, he developed a series of small spreading basins up at the corner of Vanowen [Street] and Whitsett [Avenue] out in the Valley. He began experimenting with that and finding how it reacted and what it did and how much of it absorbed. He learned an awful lot, and by 1930--which was the bottom of the drought year--he got some money in the budget and bought 185 acres up at Coldwater Canyon [Avenue] and Roscoe [Boulevard], which was right adjacent to the old city trunk line, which was the main trunk line from the storage at San Fernando Reservoir across to Franklin Reservoir and the other in-city reservoirs. From that, he took surplus water in winter and spread it in these flat basins on the alluvial cone so it would be available as it migrated down further. It would be available at those Vanowen wells the following summer. That's why we were completing those wells across there: to have those ready so that when the migrating waters got there we could--as Mulholland put it--we could borrow from

the bank. Left alone, it would eventually migrate southerly and southeasterly and show up at the Los Angeles River. What we needed was the usable storage, which is many times what you could build on the surface. That's what Lane was doing when I came into the organization. It's fascinating. He was, I think, the first to establish the replenishment of groundwater basins by artificial means. It might have been done in small ways some other places, but Lane was the man that did that. He found that waters in that kind of soil would penetrate and go straight down. You could go right up to one of those basins and dig a trench within five feet of the edge of the water and your trench would be dry. Because that water was migrating straight down until it finally joined the groundwater, and when it did that, then a mound would begin to form and gradually the side slopes would flatten. In addition to that, there would be a very fine film of colloidal material that would gradually form on the top of these basins and effectively form a seal, almost like you'd put a little, thin sheet of plastic over it. So he would spread about a certain length of time, and he'd take those basins out of operation till they dried out and take a spring-tooth harrow and harrow the whole thing again, turn the water back in, and the absorption rate would return to its original capacity. We learned an awful lot about rotating these and how to do it: when it was operating at great efficiency, when to stop it, and how to get the maximum out of it. It worked beautifully.

BASIAGO: The third technical subject was backfilling pipes to make them more stable out there if you were ripping a road apart and were working on some pipes.

JONES: Oh, that was one of my babies.

BASIAGO: Yeah, your innovation.

JONES: Of course, an awful lot of my fellows did the detail work on it--I want you to understand that--but that was one of my babies. I was getting concerned

about the fact that our costs were so high for restoring pavement. Not only that, we were becoming more and more subject to damage claims because of the difficulty of maintaining a temporary surfacing on a street under heavy traffic conditions. We were getting damage claims from people caused by gravel raveling off the temporary surfacing. Women running to catch a bus would step on one of those pieces of gravel and twist an ankle, and another stone would squirt out from under a tire and break a big plate glass window. Of course you have a certain amount of that all of the time anyhow. I was concerned about it. The costs of resurfacing were getting out of sight proportionally. It would cost you more to resurface a trench than it did to dig the trench, install the pipe, backfill it, the whole damn thing. So I was hunting around in my own mind for something that would stay this.

One day I was out at the old spreading grounds--that's what we called that up on the cone there, Coldwater. We came by where there had been a market. Somebody was going in with a new development, and they had torn up the old parking lot. On the other side was a portable rock crusher. They crushed all that material and it was in a big conical pile out there. It started me to thinking, and I thought, well, now, the Germans following World War II crushed all the rubble from all their buildings that were down and used it to rebuild their city. Why couldn't we use this pavement that we were breaking and costing so much to put on trucks and haul for miles and miles to dump in some old gravel pit? Why couldn't we crush it and put it back in the trench and use it in some manner that would stabilize that surface? We would get away from this raveling and the sinking and all the maintaining we had to do. Because the [Los Angeles City] Board of Public Works (who were responsible for the paving) made us responsible for maintaining the temporary road until such time as they could get at it, and we were restricted to using not over one inch of paving material. That

was pretty rough to do. So I got the notion that-- We tried a lot of other stunts. I got the notion that if we'd get a little crusher and hitch it to the backhoe or to the trenching machine, as we went along we would just take this broken concrete and everything that came out of the trench and put it through that crusher and put it on the side of the trench. The broken pavement would be on one side and the dirt on the other. And when we put the dirt back in the trench and flooded it, then we'd fill the top six or eight inches with that broken concrete or broken paving, and that would stabilize it. We would put our temporary on top of that, and it wouldn't ravel.

So I began casting around for a small crusher, and I found I couldn't get one for a reasonable amount. Then it occurred to me that we had seen a portable crusher, and somebody might do that on a rental basis. So we decided to do that out around old Buena Vista Reservoir. We'd use the central district as a place to do it. So we started on one of those jobs down there, taking the crushed paving, dirt and all, out of a trench, loading it directly onto a truck, and hauling there and dumping it. That kept dirt off the street, nothing else on the street. That kept us into a compact area, and all we had to do was dig and lay a pipe, and we didn't have to have dirt and shut off half the street. Right away we could begin to see benefits. Then we got this guy in there and had him crush this and mix it all together and put it in a pile.

Somebody brought up the notion--come to think about it, I think that was me also that got the notion--make soil-crete out of it. Well, that worked on the aqueduct. We had two or three ready-mix concrete trucks we used up there, because on our maintenance shutoff, we'd make our own. Because of the cost of it, we had to clean our own aggregate, and mix our own concrete up on the aqueduct. So I promptly borrowed those trucks and brought them down and got this guy in there with his rental machine, and he crushed all of this stuff. In the

meantime, I've got one of my foremen scouting around, and he found an old hopper someplace in a junkyard. He brought it down there and set it up on high beams, and we built a ramp up to that. So we'd have a guy with a front-end loader get a scoopful of this mix that we had crushed and bring it up and dump it in there. Somebody else would dump in a sack of cement. We'd put about a sack to the yard, and we would mix that all up and move it back to the job and pour it in that trench to within about six or eight inches to the top, usually within two inches of the bottom of the prior paving, wherever that was.

Then I went over and talked to the Board of Public Works and the engineer in charge of street maintenance. We went around and around and around on this, but he finally agreed to go along with the experiment. Instead of him sending out a bunch of dump trucks with a backhoe and all this stuff, to take out the topfill and the old temporary surfacing, we agreed that we would put in the backfill, we would prepare the edges and everything. All he sent was two men. They'd order out their concrete and they'd bring it. One guy would handle the spout and it would run along, and the other one would use the float. And they charged us their actual cost, instead of the ordinance cost. Why, instead of paying \$3.50 a square foot for concrete, we were paying about eighty cents. Instead of paying for all these other dump trucks and so forth-- They were gone. We found that our own costs of hauling this material great distances to dump were alleviated. The public relations angle-- Everything paid off, and it just worked like a charm.

This is the real cream. You'll find in your lifetime you're always looking for a better way to do something. Every once in a while something will work, and it's gratifying. I think somebody figured that we saved something over a million dollars the first year, and we then gradually got it to all the other districts. Since I left there, they found a contractor who has a yard right down on the Los

Angeles River. For the central district, they haul everything they have to that yard and he processes it, and we just haul it away from there. The other districts still have their own storage and crushing (at least that's my understanding that they do) and that's made us nothing but money, and it's also made us a lot of good friends. If there is anything worse than to tie up a street week after week-- And here's your sign up there: The Department of Water and Power. You don't make friends very fast that way. So I'm very gratified about that one.

BASIAGO: Were there any other instances of innovation that you found really gratifying?

JONES: Yeah, there were a lot of them. Another one that I found very gratifying-- Of course, all of these things you have to share with superintendents and foremen and people who develop them and refine them and so forth. I was with the superintendent of the West Valley district one day, and we were concerned. They were building a freeway through there and there was a lot of raw land exposed, and we were going to get a lot of dirt in the upper Van Norman Reservoir. We were concerned about it, and he said, "You know, I see these guys over there on the freeway, and they punch straw down on the side slopes. They throw straw over the side slopes of the earthfills on the freeway, and then they run a modified sheepsfoot roller up and down there. That punches that straw into the soil and it doesn't erode, and that will hold until such time as they get plantings in and all that sort of stuff." So we got to watching that and we got to thinking, and I said, "Well, why don't we do that around this reservoir? We've got some areas down there where there are some wild oats growing. Let's get a mower down there and mow that and bring it up there and strew it over that area and get a tamper and tamp it."

Then as we were going up the line, we watched one of these tampers going. He was running over some brush, and he broke that brush down. And,

by gosh, a thought occurred to us (and I don't know who spoke at first) but why the hell don't we fix up a rig and try crushing this brush down, instead of having to cut these firebreaks and worry about fire and all that sort of stuff. Then, besides that, where you cut a firebreak you're subject to erosion. You get into all kinds of problems. You have to lay zigzag planking and do all kinds of things with it. Let's see how it will work. So we had an old yard up there at the upper Van Norman [Reservoir] where we had a lot of things left over from the old aqueduct and some of the early days in the Valley. And out there--nobody knew where it came from or where it belonged--was an old slick roller. I'll bet it was twelve feet wide, maybe only eight, heavy steel laying there rusted, of course. So I said, "Well, let's get the blacksmith out here and have him put some 3/4-inch steel, rounded feet on that and build a new--"

BASIAGO: This is a steam roller with spikes on it?

JONES: Yeah, build a yoke for pulling and fill it with water to add weight and see what we can do. We hitched that up, and boy, it just crushed that brush down beautifully and just stomped it into the earth. It still left the roots intact, but it made it so the soil wouldn't wash away, and gosh, we were happy. I went down to the central yard, and transportation had an old truck down there that they were about to junk. It had a side reel on it, and we decided to see what we could do with that. So we pulled that old truck up there with that side reel and rolled this roller up and down the side slopes on the ridges adjacent to the reservoir. God, it worked like a charm. So we got rid of the truck and we got ourselves a D-8 Caterpillar tractor up there with a big winch on the end of it, and this cat could just crawl up those ridges like nobody's business. We just rolled it down both sides and then along the fence line up at the other end adjacent to the buildings, just hooked it on behind the cat and pulled it. Boy, it worked so beautifully there, we took it over the hill and used it on the Stone Canyon Reser-

voir. You may remember that lying just westerly of the Stone Canyon Reservoir are some of the highest-priced homes in the city. That took the fire fear away from them. We showed them what we were doing and their chamber of commerce was absolutely delighted, and that's been working ever since. These are things that give you a lot of gratification.

BASIAGO: What about in terms of fire prevention and other techniques? You mentioned that tamping that down created a fire lane.

JONES: Oh, yeah.

BASIAGO: With L.A. being such a capital, a world capital, of brushfires--

JONES: Yeah, well, we'd had some out there. We had a brushfire that started over on the Valley side of the Santa Monica Mountains. It went over and jumped across Mulholland [Drive] and got over onto the Pacific slope and burned out a hell of a lot of homes, so that everybody was frightened of fire.

One of the groups out there had proposed and were going to insist-- They were going to go to the council, they were going to get it on the ballot, everything else. They wanted us to put in a heavy sprinkler system with enough pumping reserve and so forth to completely protect everybody from brushfires around our reservoirs. My god, the price of that is overwhelming. Even if you sold all the homes, it wouldn't pay for a system of that kind. Besides that, you have no guarantee that it is going to work. So we had a lot of things to consider in this, but this old brush roller did the trick. I'm delighted with it.

BASIAGO: What other application has it seen? Just in the department or--?

JONES: I don't know whether anybody else has picked it up or not. There's been some papers written on it, but whether anybody else has picked it up or not, I don't know.

BASIAGO: So it actually has been found effective for fire burns.

JONES: Oh, yes. See, if this stuff is all knocked down, the fire can't crown out,

can't run. So you can get a fire started all right, but the most it could do is just creep along the ground, and hell, you could go out and stop that with a bunch of sacks. Put guys in there with shovels, and it's no problem at all. Whereas if it gets started and crowns out in that brush, especially after a series of wet years and you get brush that's fifteen or twenty feet high, and it crowns, my god, that stuff will create a-- It will leap as much as a half mile in advance; those embers will go a quarter of a mile in the air. But if you can get them knocked down--

BASIAGO: In what ways did the L.A. DWP modify its delivery systems? Let's say following the '65 fire in Bel Air or the '75 fire in Chatsworth or any of the big fires that destroyed a lot of homes. Were there any innovations, in terms of water delivery between the foothills or canyons and high-priced residential areas?

JONES: No. As we pointed out to the inquiring people after these fires, you couldn't build this system big enough to control one of these fires once it got under way. If you did, nobody could afford it. You just couldn't. In the first place, it would have taken something like a 24-inch pipe. Let's say where you normally lay 6-inch and 8-inch grids, it would take 12-inch and 24-inch to provide that kind of complete coverage. And you would neither have the water delivered to it, nor could you afford it. Besides that, when you weren't fighting the fire, the water goes stagnant. So what we did, we attacked that from several fronts--I was in on this with the fire department and others--and one of them was that people went to composition roofs, including asbestos and the mineral-type shingles and this type of thing.

BASIAGO: Fireproof shingles.

JONES: Fireproof shingles, and in many instances people put in their own little sprinkler systems on their roofs. In other places, people on their own had felt material rolled along the rim of their roof overhangs. If a fire started, they had it

rigged so they could drop that felt down and probably turn on the hose and get it wet, and that would keep the heat from accumulating under the roof overhang. Wasn't much of that done. But the fire department then required that up in the hills everybody would clear a space within two hundred feet of their residence. I've forgotten the height, but it was something like two feet in height--nothing over two feet. Attacking it from several fronts, we did correct the situation up on Mount Washington. You may recall there was a devastating fire on Mount Washington in the fifties. Hell, what it was, the fire department was on a move-up. They brought in a strange group on this move-up, and they hooked onto the wrong hydrants. A block away were the hydrants off the 12-inch main, where they had plenty of water, and they hooked on to hydrants off a little 6-inch [main], and they pulled the hydraulic grade clear below ground. So we did go in there--although that 6-inch [main] was entirely adequate for every other purpose--we did go in and put in a larger pipe up there. You have two things to watch. While fire-fighting capability prevails normally on the sizing of distribution mains, you have to watch that you don't oversize, because you lose movement and get into stagnation. That's what [happened], for instance, on such places as Van Nuys Boulevard, Broadway, downtown, Hollywood Boulevard. It was proposed, I guess, at least twice every year--by somebody who thought he just discovered the wheel--that we go in there and double-main those streets so that we wouldn't have to run long hydrant laterals across the street or have to block off the street while hoses were run across. They use the big double-four hydrants, of course, on all the corners. We tried double maining Van Nuys Boulevard, but the water would get so stagnant and smelly. We couldn't keep it fresh. If you cut it down to where the water was fresh and moving, you didn't have the fire capacity. So this double maining, except in very extreme circumstances, just doesn't work. So you install one main that's adequate, and

then you run your long laterals across the street and come up with your big, fat hydrants. And you put one on every corner--and one in the middle of the block, if you are in the high-rent district, so to speak. But it is the fire demand that ultimately sizes your distribution grids.

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OCTOBER 17, 1985

BASIAGO: One thing I was interested in is when you were still living in Missouri you had this vision of California, or at least Southern California, as some Garden of Eden. What led to that?

JONES: I don't know. Probably a lot of things. Seeing motion pictures, and you read all about the wonders of Hollywood. The name itself, Hollywood, brings up visions of evergreen, you know. I imagined it as a kind of a place where everybody sat on the patio and wore loose-fitting garments and reached up and picked oranges off the trees and perhaps a banana now and then, and where life was easy. I think I mentioned before my bitter disappointment at coming into California and coming down from Merced, especially. We stopped in Merced, and it was just miserably hot that day--no air-conditioning, of course. And we came on down and came through Bakersfield and on over the Grapevine and down into the San Fernando Valley. We came into that northeasterly part of the Valley, which at that time was just practically nothing but granite rock and sagebrush, and as we proceeded down more toward the Valley there were a number of peach and apricot orchards and vineyards. Vineyards were very popular in the eastern part of the Valley. In fact, I believe North Hollywood--which was then still called Lankershim--was called at one time "the home of the peach." Everything was dry, burned up, and hot, and the heat reflecting off of these granitic rocks-- The value of water became immediately apparent, because right in the middle of all this there would be somebody who built a house and here would be a little patch of green in front of it, so bright a green it would almost hurt your eyes.

BASIAGO: Do you think that orange-crate labels might have created that vision?

JONES: It might have, that was just one of the things. Of course, as a kid, we used to buy oranges wrapped in orange tissue paper. They were nice, big oranges, perhaps four or five inches in diameter, and to show you how valuable they were, they cost us a nickel apiece. That was unheard of for-- Let's see, I think that would be sixty cents a dozen or something. Well, but we figured that would buy a bushel. If you were going to eat apples, for instance, you'd pay fifty cents or a dollar for a whole bushel of apples. My pop never quite understood why we liked oranges so well, but they were-- We'd get one of those oranges and that was a real treat for us.

BASIAGO: Another thing we talked about before that I want to hit on again was that you mentioned how the comparable-wage clause of the 1925 L.A. city charter was such a great idea on the part of the city fathers, because it directed or preserved quality personnel in the public sector.

JONES: Oh, yeah.

BASIAGO: Do you think that's still been effective over time, as the private sector has taken off?

JONES: Well, yes. It has caused a lot of criticism in late years because of-- And there always has been a strange thought about public servants. It doesn't permeate everybody, but it's a general thought, and I think it was carried West from people coming from the East. The view is that they want their public servants to be the very best there is, and they want absolutely perfect service from them. But they want to pay them about half of what they would pay their own people and provide them with none of the fringe benefits that occur in other places. So one of the wise moves that was made--in my view one of the very important moves that was made in the 1925 charter--was that statement that

they must pay at least equal to comparable jobs in private industry. Now, the enemies of that have leaped on that phrase "at least equal to," because in some instances they maintained that they were paid in excess of that paid in private industry. I haven't found that to be true. The surveys that are run are very accurate, and I haven't found any place where it was in excess of private industry. Sometimes in blocking out certain areas under the salary-standard surveys, there may be a few instances, such as in the secretarial or clerical field, where we would cover a wider gap in a range. You might find in private industry that, let us say, they were hiring beginning stenographers at \$400 a month, and we might be paying \$415. But then that was soon rubbed out, so it balanced out pretty well. I think that has been very important, because it allows us to keep attracting very competent and capable people in the public field. It was my experience that Los Angeles had the finest corps of public servants that I've run into anywhere in the country, and we were the cleanest city anywhere in the country. In all the years that I worked there, I have known only two different cases of fraud or cheating taking place amongst the public servants. They don't last long.

BASIAGO: What cases were those?

JONES: Well, one of them was a health inspector that was assigned to San Pedro, and he had come out here from the East. It was his viewpoint that if he was smart enough to pass the civil service examination that he ought to get some cumshaw out of it somewhere. He used to go into the harbor and those fish canning plants, and ask them, "Do you have any dented cans today?" They would say, "No." "Well," he'd say, "bring a hammer along and we'll go back and dent some." Then they would sell them to him cheap.

BASIAGO: He was forcing them to do that?

JONES: Well, yeah. He left the intimation real clear that if they didn't come

across that he would pull a health inspection on them. And he could find-- You know, by nitpicking, you can always find something. Another thing he'd do was take his family into a restaurant in that area, and if anybody made the mistake of giving him a dinner check, he'd immediately inform them that he was a health inspector, and he would inspect the kitchen. He could always find that somebody had dropped a potato peeling in the wrong direction or something like that. But he didn't last long. I met him, and I couldn't believe it.

BASIAGO: What was his name?

JONES: I've forgotten.

BASIAGO: Really?

JONES: Yeah. I've forgotten his name, but the fellow that was along with me that had met him before said, "I want you to meet this guy. He's got the most unusual attitude of anybody I've ever met." The fellow that introduced me to him was Bill [William] Tibbett, who was then working for our sanitary engineering group, and he later transferred to public health. But I was down there taking care of the mortar lining of some pipes and the reconstruction of some large services and things of that kind. Bill and I were working together. We were overhauling a lot of large services in the harbor and putting back-flow protection on them so to protect the public system from any back-flow out of an industrial plant.

BASIAGO: Who was the second fraud artist?

JONES: Oh, well, I think the Shaw regime was the most notorious. When Frank Shaw was mayor, his brother [Joseph E. Shaw] got involved, and he was selling civil service exams and doing all kinds of stuff, raking cumshaw from everywhere. But he got caught and immediately cleaned that matter up. But this city, the city of Los Angeles, has been the cleanest city, and I worked in a lot of places with a lot of other people.

BASIAGO: Why do you think it's been free of some of the corruption in eastern cities?

JONES: Well, I think principally, well, especially in [Los Angeles City Department of] Water and Power, they were wise enough to break us out of the political system. Written in the 1925 charter was the fact that the Department of Water and Power was tied into the political system only over the appointment and confirmation of the general manager. They had that say-so because he was exempt from civil service. They also had to approve the rates that were set up, and anything that had to do with land matters they had to approve. Otherwise the design, construction, operation, maintenance, and the handling of all the managerial matters was free of political consideration. The politicians never quit trying, and I often wondered why they wanted to get involved. Because here was a full autonomous outfit that not only carried its own weight--and very favorably as compared to the rest of the country--but also kicked in 5 percent of its gross revenue into the city coffers. Why a city council wanted to get involved in this thing-- What they wanted to do eventually was get their hands on those revenues. One of the worst things that happened--and this grew up all through the East--was that municipally owned utilities in the East and Middle West had their budgets all tied into the general city budget. Consequently, water pipes being out of sight were also out of mind, and they became the tail end of every budget-making process. And the older cities in the East--New York, Boston, all of those--their water systems went to hell. There wasn't money to maintain them, and pretty soon they were being run by political appointees and their budgets were always inadequate. Nobody seemed to give a damn, but now that they've gone to hell, they're crying all over the place to try to--with federal help or any kind of help they can get--to rebuild their system, and I'm against that. I'm against federal help and against state help because municipally owned water

systems and power systems should be entirely self-supporting, and Los Angeles, I think, is the most outstanding example of success I know of anywhere in the country.

BASIAGO: You mentioned the three restrictions on the DWP implemented in the 1925 city charter, the first being that the mayor then appoints the Board of Water and Power Commissioners.

JONES: Yes.

BASIAGO: Then they have to be approved by the city council.

JONES: That's right.

BASIAGO: The second is that the DWP can't buy or sell land.

JONES: Right.

BASIAGO: And the third is that the mayor and council set rates.

JONES: Right.

BASIAGO: What are some of the things the department has done--or did historically while you were working for it--to try to bend that a little bit or get a little leverage on those three areas? Did it do anything or was it very--?

JONES: No, we didn't do anything to try to upset that. It was the other direction. The council has always tried, not always, but some are more adamant than others. They say, "Well, we are appointees of the people and we want response to the people." Those that were wise, if they got complaints or anything about Water or Power, they sent the letters over to Water and Power, to be answered with copies back to the office. We, in turn, tried to be as helpful to the councilmen as we could, but not to let them get a foothold in. I can give you one example--and I'm not even going to try to remember his name--but it was a councilman from the San Fernando Valley. He wanted us to not only deed to the general city for public use some of the protective property around one of our reservoirs for use as a public park, but insisted that we also go in there, do all the

grading for the roadways and put in a water system, unmetered, to take care of this park out in his district. This was going to be just a piece of cumshaw. We balked and we wouldn't hold still for it, and we wrote several reports regarding it. Well, he blatantly told us that we were never getting another rate raise as long as he was there if we didn't do this sort of thing. But--I don't know how to put it in nice terms--but he was refused with considerable vigor, and as I recall, I don't believe he was reelected either.

BASIAGO: You mean the department doesn't have a lobbying arm in terms of rates? In other words, if it has no control of its rate destiny, what does it do?

JONES: Yes, we have lobbyists over there to keep track of what's going on, but that's as much to benefit them as it does us, because this gives us a "pipeline" in and out. He's not empowered to make any decisions or to make any commitments, but he tries his best to keep informed. And if they ask him any questions and he doesn't know the right answer, then he can immediately get a pipeline to our general manager or to whoever he needs. Yes, we've long had contact with the city hall, and that's a good thing, because that helps the communication lines. But, no, we have never tried to wrest the powers away from the council that it holds. Usually before there is to be a rate raise going to the council, we try to prepare them with literature and so forth in advance so that they know what's going on. And usually the general manager himself will appear at the council hearing to answer any questions which they may have. We have had some troubles with rate raises a time or two when our own management didn't persist as hard as they should have, in my view, and allowed us to get behind in our rates rather than keeping up with an increase of rates which would match the increase in cost of living and all these other indexes of the economy. One of our fellows, one of our executives, wrote a paper in which he bragged about the fact that in spite of everything else going up, we had held the line. Well, I almost bled

for him, because in a high-quality nonprofit organization, you can't help but lose quality somewhere along the line unless you keep your rates up. And still, with all the imported water and all the imported power and everything that comes in here, our rates are extremely favorable as compared to the rest of the country.

BASIAGO: Did you ever have any particular friends over there in the council throughout the years?

JONES: No.

BASIAGO: No city councilmen who were particularly friendly?

JONES: Oh, yes.

BASIAGO: Any standouts in that area?

JONES: I remember some that were considered more friendly than others, but I don't remember their names at the moment.

BASIAGO: What about mayors? How have their attitudes changed? Who was particularly favorable?

JONES: The only mayor that I recall who was an adversary, so to speak, of public ownership-- And I don't think that was a principle, but I think somewhere he got to believing there must be a lot of fraud somewhere. That was when Bowron--

BASIAGO: Fletcher Bowron?

JONES: Yeah. When Fletcher Bowron replaced Frank Shaw, he rode in on a recall, because they had uncovered the nefarious acts of Joe [Joseph E.] Shaw, who was Frank's brother. So when Bowron came in, he was under the impression there was fraud all throughout the city, and he was going to weed it all out. He immediately appointed to our Board of Water and Power Commissioners a bunch of people who he imbued with that same thought. He gave us a real rough time for a period. These guys were snooping around determined to root out the fraud that existed in Water and Power. All they thought from all their

digging was that somewhere they weren't digging deep enough, that it had to be laying there someplace. They went so far as to even go down to senior engineers and probe them and question them in looking for this sort of thing. Bowron himself for most of his first term was determined that he would find the evil in there, but he never did. I think he parted a friend of the department. I think he finally found out that it was an up-and-up outfit.

BASIAGO: What about Mayor Sam [Samuel W.] Yorty? Do you remember him when he was an employee of the department?

JONES: No.

BASIAGO: Did you ever meet him when he was--?

JONES: Not when he was an employee. I met him as a mayor, and I admired him tremendously because he was so damned forthright. I would read about where the council was going to really ram things down his throat, and all this sort of business. Following the earthquake of 1971, the mayor asked me if I would come to his office and talk with him about preparing for a news conference. While we were there, the buzzer rang, and there were two or three councilmen--two of them from the San Fernando Valley and one from somewhere else--who had been the loudest in what they were going to do to the mayor. They walked in with their hats in their hands, and Sam dressed them up one side and down the other. Believe me, they were bowing their heads saying, "Yes, sir. Yes, sir. Yes, sir," before they moved out of there. He was a very capable man, made a lot of enemies because he was not diplomatic. He was blunt and forthright.

One of the reasons, I guess, I'll be endeared to him-- He asked me to go with him to this news conference and stand behind him. Because this was right after that earthquake, and in case he ran on to something where he didn't know the right answer, or had forgotten, he could refer to me and I could feed him information. Well, this went on for a little while, and finally he said, "Gerry, why don't you

get up here and answer them directly, and then it will just save a little time." I got up there, and one of the fellows--I don't know now which newspaper he was from--started making a bunch of sarcastic remarks. I felt someone push me to one side, and it was Sam Yorty. He put his finger out there and said, "Now, you cut that out." He called this reporter by name, and he just gave him hell. He said, "If you're going to try and start that kind of crap, I'm going to throw you out of here." Believe me, he had control. And we went back then, and I could answer the questions, because I was not used to handling all this sort of accusatory half-truth. I don't know if you've met this type of so-called investigative reporter or not. Well, I ran into a lot of them in the aftermath of that quake. I found the best way to handle them was to do just like Sam Yorty, just give them bloody hell right from the start, and I did.

BASIAGO: What kind of aspersions were they casting about following the quake?

JONES: Oh, that we'd made wrong judgement decisions and we came within an inch of drowning out the San Fernando Valley, and if we hadn't done so and so, would we have gotten the Simi Valley too. I mean, a sarcastic type of approach. Another type of approach was-- And I don't know whether I recited this before or not, but one of the television stations called me up and they wanted an interview on an occurrence that had happened out near Van Norman Reservoir. What had happened, a small oil line had broken up on San Fernando Road, and the oil had leaked down and been caught in a catchment basin, which was intended as a stormwater-debris basin type of thing, up above Van Norman Reservoir. It had been caught out in the field, the oil turned off, and the oil company had come in and cleaned it all up and taken it all out. But I hadn't heard of it. A man came over and brought his cameraman, and he started right in, standing by the map--that big map that you can see in on the wall in there--with his cameraman, and

pointing and started asking questions as if we were covering up something that was dangerous to the lives of the people of Los Angeles, that we were in cahoots with Standard Oil [Company of California] and covering up for them. And when he started that line, I told him in no uncertain terms that if this was going to be his approach, our interview was over. I hate to put this on tape, but I told him I would kick his ass all the way down the steps, and I kicked him out and slammed the door. Well, in a few minutes he knocked on the door and said, "I was off base. May I come in again and we'll start over?" I said, "Certainly." So he did and we had a good interview. And at the six o'clock news he used the interview taken in my office, and it was factual all the way through. On the eleven o'clock news--he had been out in the field where this had occurred--it showed him standing there pointing where it had happened, and he said, "Were lives intentionally threatened here because of cahoots between Standard Oil and--?" Well, I reported that to our public relations people. They immediately contacted the Federal Communications Commission, and it went against his station's record when they sought a new license to operate. So that kind of a threat kind of kept some of them under control. But I'll say this: Most of the people that I dealt with were sincere in trying to get the right answers and get the right news. But there was always this fringe, in the so-called investigative reporter, that was insulting and unfortunate, where they could have been of tremendous help, but were nothing but a hindrance to people. Los Angeles, as I said before, has been historically, and still is, the most honest and cleanest city in the United States.

BASIAGO: So getting back a little bit, Sam Yorty began, I guess, as a friend of the department. What about Tom [Thomas] Bradley when he came in?

JONES: Yes, Tom had been a member of the Board of Water and Power Commissioners, and he has always been, more or less, a good friend of the department. People in his position are subject to a lot of stresses from a lot of different

directions, and I think Tom is a strictly honest man. I think he's had to compromise to keep the ship of state on an even level of keel. I was always pleased with his administration, less so in the last--if I can believe the newspapers--the last few months. As he's preparing to run again for governor, I've been less pleased with some of his actions. But I think Tom is an honest, levelheaded man, and I think in general he's been a good friend of the DWP.

BASIAGO: What's the connection between involvement with the DWP and political fortunes? For instance, both Sam Yorty and Tom Bradley were connected directly to the department in their careers. Has that always been a boon to young politicians to get associated with the department?

JONES: I don't know. I really don't know about that.

BASIAGO: If the department is autonomous, why does it seem that becoming its friend can be such a helpful thing to ambitious politicians?

JONES: Well, it's helpful just like-- May I give you an example? Do you belong to a public service club of any kind?

BASIAGO: No.

JONES: Well, I never had. I guess I've spoken to at least two hundred of them, and I wasn't impressed by them. I felt that their association and their so-called friendship was sort of a superficial type of thing and not sincere, until I spoke before an Optimists [International] club out in Hollywood and I was taken by their creed. So when they decided to form a civic center club of the Optimists International, I was invited to become a charter member. I couldn't go in right then, for several reasons, but later I did join. That club was made up principally of the nonelected officials of the city, county, state, and federal. Much to my surprise--I didn't go in for that reason--much to my surprise, the friendships which we made in there made all of our work a lot easier because of the mutual trust that we had in each other. No one gave anything away, nobody went sub rosa, nobody did

anything for me that they weren't supposed to do legally. We saved a tremendous amount of money and time through the mutual trust. We could carry on business by telephone, get action done right away, and follow it with confirming letters for files, because of the mutual trust of friendship which existed. We were very careful never to breach that friendship with each other, and I think this is true even with the people that are in politics. I think the fact that if a councilman could call me as a major division head, and if I could trust him to tell the truth and not try to aggrandize himself by putting somebody else down, it could help him and it could help us. Because his understanding of the viewpoint of our problem and our understanding and viewpoint of his problems could be very helpful. So that's the only advantage that I see to it. Councilmen have problems. There's fifteen of them, and they probably represent a couple of hundred thousand people each, and these people look to them for answers. If we could develop all of that mutual trust between ourselves, they could get those answers much more rapidly and they wouldn't have to resort to having everybody put it down in writing so that there would be no mistake and they could defend themselves.

BASIAGO: Are there any current city council members who you think are particularly cognizant of the Department of Water and Power's problems?

JONES: I'm not acquainted with them anymore. I'm not sure who's there and who isn't.

BASIAGO: Let's talk about the impact of World War II on the department. I know that Hughes Aircraft [Company] put a mock-up of a miniature city on top of some of their development hangars so that if Japanese bombers came over they wouldn't see the hangars, they would see a city instead. You mentioned in the last interview that the department set up some kind of volunteer guard in case the [first Los Angeles] aqueduct, the 232 miles of the aqueduct, was endangered by--

JONES: And also our key distributing stations for the power system and key installations in the water system. We had volunteer guards that were trained and capable of being called out. We never did, except an exercise-- Oh, one time we did. I guess it turned out to be a false alarm. We had a blackout. That was the time when there were some planes that came over, and somehow or another an enemy submarine got into the breakwater down-- At any rate, we all gathered, and we thought it was for real. I guess it was. I know I had a city truck at home with blackout lights on it, and I started for my station--I was head of a small guard force--and all the block wardens all the way down had the most powerful flashlights I ever saw in my life. I'd go a block and somebody would shine that right in my eyes and here were these big city symbols over there. I had to stop and identify myself and tell them to get the damned light out of my eyes because I couldn't see anything. I would have to wait there until my eyes adjusted. I would get into another block and, boom, there it was again. It was a hell of a road trying to get around, but, yes, it was a good organization and we were set for trouble.

BASIAGO: How well fortified were they? Did they have antiaircraft guns or anything?

JONES: No, we didn't have anything like that. We didn't have any weapons. All we carried was handguns. What we were trying to protect against was sabotage. We called on the Sixth Army, and they did some air patrol of our aqueduct system and would have, in case of need, sent some armed forces in to help us protect that.

BASIAGO: It seems like such an easy way, to cripple the city by air and then strike on the aqueduct.

JONES: We did camouflage some of the inverted steel siphons during that period. However, it was--

BASIAGO: So there was some camouflage, huh?

JONES: Yes, yes. The inverted siphons were, for the most part, on top of the ground, so we did do some camouflage work on those. I don't know how effective they were, because if you were up to where you could see any distance, you'd know that there was a line of some kind down there. There was something visible, you know. They mottled it like they did, for instance, camouflaged clothing. It was all mottled so that it kind of just fit in with the sagebrush.

BASIAGO: You mentioned a figure in the last interview, that if L.A.'s water was cut off, the city would be abandoned in seven days. Did that come out of any kind of official study of what would happen if L.A.'s water was cut off?

JONES: Yeah, we made some studies. I've forgotten the details of it at the moment. What we tried to do-- Well, years ago when we used so much of the water for irrigation-- I remember in 1939 I was in on making a study, and at that time we figured that we had enough water in the city that would last thirty days. But as time went on, we just couldn't keep that amount of storage. Of course, some storage was supplied by the Metropolitan Water District [of Southern California] just for the regulation of its own lines, so that helped somewhat. We figured if anything happened and the water supply was suddenly cut off, nobody could live. Where could you go to get a drink? There might be a few, let's say, that lived above one of our reservoirs that could walk a mile and dip up a bucketful and carry it home. But the only thing that makes modern cities tenable is water distribution systems--and of course the inverse, the sewage collections systems. But you could live a lot longer without a sewage collections system than you could without a fresh and safe water supply.

BASIAGO: Has the department ever considered having individuals storing water in their homes for emergency purposes?

JONES: No, no. The only thing that's been talked of, they used to talk about

canning water and putting it in bomb shelters, and things of that kind. No, what we've stressed is to save the water in your tanks, your toilets and your hot water tank. Your hot water tank-- Mine out here will hold a hundred gallons, and if you just start using water as a survival means, you could live a long time on it. You don't have to bathe and you don't have to flush toilets. You could go out here and dig a hole and get rid of your bodily waste into the ground, and [using] a cup at a time, a hundred gallons of water would save you quite a long time. It might not be the finest in the world and it might-- But dehydration is a quick killer. You could save the water in your hot water tank and also the tanks in your toilets, and you would have about six gallons of those two and anywhere from thirty to a hundred gallons in the hot water tank. That's enough to survive on for a quite a long time.

BASIAGO: So the figure really came out of the 1939 study for agricultural purposes?

JONES: You mean--

BASIAGO: This figure of seven days.

JONES: Seven days?

BASIAGO: Yeah.

JONES: I don't recall. I just don't recall.

BASIAGO: In some of the emergency plans, was there ever any planning done for storing water underground, in the event the above-ground water supply was contaminated?

JONES: Well, we had always used the San Fernando Valley as groundwater storage. We hadn't set up anything, for instance, like you're talking about, cisterns.

BASIAGO: I was just going to use that word, yeah.

JONES: No, there was never any serious plan going forward for people to

provide themselves with cisterns for the storage of water. I've often thought of it, and I was thinking about it right here and how handy it would be sometimes. If you had a cistern that would hold maybe a thousand gallons of water, with a little old pitcher pump on it, it could be quite a help during a drought period. But then water goes stagnant with temperature, and all other kind of things. No, it's never been really seriously considered as a public adjunct, to my knowledge, I should say.

BASIAGO: Yeah. It seems like there were so many things done in the fifties, you know, with fallout shelters and such.

JONES: I was very active in the civil defense organization at that time. I had a real high-flying title. [I was] called regional water-service chief, region one.

TAPE NUMBER: III, SIDE TWO

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BASIAGO: I was wondering about the 1977 drought. I've read that only 17 percent of residential users cooperated in some of the water conservation measures. Did that really concern the department? I mean, what's been its position on water conservation? Has it ever considered involuntary measures during a drought? Is there a certain point where it will invoke nonvoluntary measures if the drought becomes more serious?

JONES: You must remember that I retired prior to the 1977 drought. We had been through a drought in the 1930s, but we had never found a time where we even had to ask people to curtail their water use. The first time that I ever knew of us publicly to request people to curtail their use of water was during the earthquake of 1971. There were areas then where we had to ask them to not overuse it. But a part of the water conservation that has always been a matter of policy is to ask people not to waste it. Not because of the economics involved, but because it is too precious a commodity to be just allowed to run to waste. I still think that is perhaps the best idea, and what they've done-- Not only ourselves, but Metropolitan [Water District of Southern California] and all the other water districts in California have worked with plumbing manufacturers and everybody else that have a way to cut down the excessive use. By redesigning, for instance, the sanitary facilities in the bathrooms, they've cut down considerably on the amount of water required to flush the toilet. Now, most of the water in a house is used for toilets and bathing. In fact, they put out kits so that people would cut down on the flow of water, let us say, through a shower head. All the new sanitary facilities that are being built get by with considerably less water than

there is, for instance, in the tanks in my place. That eventually will be of considerable help. They even put out kits where plastic bottles full of water could be--or of sand or of brick--could be put into a toilet. Those haven't worked out so well. They fouled up the floats, and the people think they're doing something. Toilets especially are the great wasters of water, because if something happens so that that float valve doesn't shut off, a thin bit of water can go over the top of the overflow pipe and come down over the wall and never be detected. You won't hear it, you won't see it, and it can waste as much as two hundred gallons a day. This is what we're after, to cut out that sort of thing. I don't think anybody has ever urged anybody to lower their quality of life. Am I making sense to you?

BASIAGO: Yes.

JONES: Water is what makes the quality of life in Southern California good. Now, if you cut that off to the point where you detract from the quality of life, then you haven't fulfilled your purposes for being. What they're working at first is to replace high usage, such as excessive use in toilets, to take care of all these leaks and so forth. They've worked on catching any leaks that have gone unnoticed in the distribution system. For instance, in New York their leakage in their own distribution system is horrible. Their unaccounted-for water is extremely high, as it is also in Boston and some of those other eastern cities.

BASIAGO: How high? Do you know, percentage-wise?

JONES: I forgot. I've read the figures, but I don't want to misquote somebody. But they're very high. Ours has been in the past very low, but we've even been able to improve on that. Working in all these directions, but all the directions which do not cut the quality of life. They are also urging that people, when they replace any plantings around their houses and so forth, that they use a drought-resistant type of plant--and there's lots of them--where they'll use less water. Now they need to also train these people. A lot of people, they could put a

cactus out here and they would water it just as heavily as anything else. You need to know when it's had enough. But these are the different fronts that we're working on, and that's what I think is true water conservation. I hear people talk--I'm on a water conservation committee right here in Leisure World--you hear these people talk about the extremes. You would think they wanted us to go back and start taking spit baths instead of a shower, and all that sort of stuff.

Here, a few years ago, one of the things people were suggesting was that we cut down the size of the service connection to the residents, so that they can't get water. Oh, sure, that might save a little water, but there always comes a time, under some kind of an emergency, when you need that full flow. And to cut down the size of a service connection into a house, in my view, is one of the most foolish things that can be done. Because when you do that, you nullify a great portion-- If you did that for everybody, you'd nullify all the millions of dollars you spent to get a high-capacity aqueduct to bring this water down here. Now, if you're not going to deliver it to the customers, then what the hell did you spend all of that money for? Everybody, at one time or another-- Suppose out in the back you have a little fire flare up, and I've got a hose, and some damn fool has cut down my service connection to where I can't get enough water to put that little fire out. It's silly. It's ridiculous. Now, if they want restrictions, put them at the shower heads, put them in the toilets, put them at the point of use. But the supply to that point of use should never be restricted.

BASIAGO: Do they have any contingency plans for a drought more serious than 1977? I guess the department would just be in the business of not selling water for a while, right?

JONES: They may have to go to a mandatory rationing. But it's a strange psychological phenomenon that I've observed over and over again in my years of service--in times of real genuine trial, ordinary people become noble. They're

wonderful. The last observation of that was in the earthquake of '71. I keep coming back to that because a lot of these things we've been talking about were demonstrated in that. Those people not only cooperated willingly, in every way possible-- Of course, we were trying to help them too. We set tank trucks full of water within a block of anybody, we had portable toilets out, we had all kinds of things to help them while we were working. On the other hand, they would take some of this precious water that they had carried from a tank truck for a block and make a big pot of coffee and bring it out and set it in front of my men that were working. Some of the guys were working twenty-four hour shifts. They were absolutely, in times of real trial, they were really magnificent. As soon as it's over, they go back to being their same old complaining, bitchy selves. If we get into a genuine drought, you'll find that most of the people will come through. There's always that 5 or 10 percent who will not, but you will find 90 percent of the people will be fully cooperative. We'll weather it, one way or another.

BASIAGO: Let's go back to the legal precedents that have been set in the water rights litigation field. What were the cases and decisions that had the most impact on the DWP? There were probably three or four that have shaped its policies the most.

JONES: Yes, I think so. Of the water that is at home, as I always call it, the nonimported local water, the most important, of course, is in the San Fernando Valley. During that period of tremendous growth in the late 1890s and early 1900s--before we were able to go to the Owens Valley for an auxiliary supply--the local supply had to be defended, and we did so under what was known as the *pueblo* right. It was a part of the basic right of the organization of the *pueblos* at the time they came into existence. We set about to protect that, and there was a series of those cases, which we called the riverbed cases. One of the most important was the *City of Los Angeles v. Pomeroy*. It was in that case that we

were first able to establish through the courts that the groundwater storage in the San Fernando Valley was part and parcel of the flow of the Los Angeles River. Or to put it in the inverse, the flow of the water of the Los Angeles River was the surface expression of the groundwater body of the San Fernando Valley. That was extremely important in all the cases that followed, because in one of the cases that was being tried, Mr. Mulholland wrote in his annual report, "These people maintained that the waters of the San Fernando Valley are not a part of the flow of the Los Angeles River and that they are not interfering with the *pueblos* right while pumping from its obvious source, which shows the tremendous difference between twiddledee-dee and twiddledee-dum." But it was important to establish that fact. That was, as far as I'm concerned, a real landmark case.

The second one-- I still haven't been able to recall that name. I should be able to recite it in my sleep, and before you're out of sight I'll probably remember [*City of Los Angeles v. Hunter*]. [It] was another riverbed case involving about 141 users in the lower end, which included the predecessors in interest to the cities of Glendale and the village of Burbank. It not only substantiated the prior finding of the groundwaters of the valley being a part of the river, but it was also in that case that they set the limits to the injunction. In other words, these users were enjoined from using the water only until water in the Los Angeles River flowed in a continuous stream down to and through the Dayton Avenue narrows. This was consistent with all western water law, which was designed to put water to its fullest use and protect against its waste. In other words, if we weren't going to use it, we couldn't be a dog in the manger and tell them that they couldn't use it. We had put in the infiltration galleries at Crystal Springs and at the head-works, which were designed to use the natural filtration of the riverbed and to also divert fully that source of supply to our use. If we weren't going to use that

water, then we could not keep it. It was also important to us in the following cases in that, as I've mentioned before, two of the defendants in that case were the predecessors in interest to the cities of Glendale and Burbank. So that in the Glendale-Burbank cases, we could cite those as already having been decided. I think the legal term--and I'm not an attorney--but I think the legal term is *stare decisis*, I believe that's the word they used. In other words, "faced with the truth"; "the decision's already been made."

BASIAGO: There were two other cases, the *Herminghaus* case [*Herminghaus v. Southern California Edison Company*, 200 Cal. 81 (252 Pac. 607)] and the Gin Chow case [*Gin S. Chow v. City of Santa Barbara*, 217 Cal. 673], which greatly influenced the Department of Water and Power in Los Angeles. What were those cases about?

JONES: Well, it showed something of how water law changes to meet changing social conditions. The *Herminghaus* case was *Herminghaus v. Southern California Edison*. Now, Southern Cal Edison had gone into the upper regions of the San Joaquin River and built a dam to control the flows of the river and to control them so to get the maximum generation of power and to release the water at times which would allow them to meet their peak demands. Well, Mrs. Herminghaus owned a lot of land out in the San Joaquin Valley on both sides of the San Joaquin River. In the spring of each year, this river was wont to overflow. It was a mature stream, and it was wont to overflow over on to the lowlands. Then, in addition to fully saturating the soil, it would put on a small layer, a thin layer of new silt every year. Consequently, the soil was very rich and the grass would grow rank and tall. She could turn her cattle in there and they would grow fat, and they wouldn't have to do any irrigating at all. Under the prior concepts of the measure of the right to use water, especially when you're riparian to the stream, was that you would put it to a beneficial use. Well, obviously flooding had noth-

ing to do with waste, but obviously flooding those lowlands and putting on rich silt on there and causing the grass to grow was a beneficial use. But the Southern Cal Edison argued that it was not a reasonable beneficial use, that their [Southern California Edison's] needs overruled this, and that all they [Herminghaus] had to do was to control and use water wisely and they still could be operated and they [Southern California Edison] could still generate power. But the [California] Supreme Court found, according to precedents, that flooding this was a beneficial use and she had a right to this use, and Southern Cal Edison was required to operate in a manner which would allow this to continue, although it was an obvious waste of water. Well, there was one justice who wrote a strong dissenting opinion, decrying the fact that so much water was wasted in order to use a small amount for this beneficial use.

Well, some few years later, Gin Chow, who was a farmer in Santa Barbara, sued the city of Santa Barbara for the same reason. They had gone up and dammed the river and were going to store any excess waters and divert them, and he had his rights along the river and so forth. Well, the same fellow who wrote the dissenting opinion in the *Herminghaus* case wrote the majority opinion for the court in the Gin Chow case, which just reversed the situation, where they stated that it had to be a "*reasonable* beneficial use." Finally they went so far in 1928 as to get a change in the basic constitution of the state, which adds the word "reasonable" to "beneficial use." Of course, that affects all users in all water rights litigation, that the measure is no longer of merely beneficial use.

BASIAGO: So that the Gin Chow case added the word "reasonable" to "beneficial use"?

JONES: Yes, that was the outcome, and altered even the state constitution.

BASIAGO: We talked earlier about the disaster plan you put together, where the main components of it were that following a disaster, department employees

would report to their normal working place, and if they couldn't get there, they would report in and say where they were from.

JONES: Yes.

BASIAGO: In just kind of standard operating procedure.

JONES: And make themselves available.

BASIAGO: And make themselves available, right. What were some of the earlier components of the disaster plan put together by the [United States] Department of Defense that you, in trying to fashion a new one, found entirely inadequate? Apparently a lot of disaster literature has accumulated for Los Angeles that was impractical.

JONES: Well, yes, and this had been largely done by staff members, and the department-- They [the federal government] used to have a department of civil defense. Maybe they still do, I don't know. I've forgotten all the details of it, but they were cumbersome. The people who tried to copy it-- I'm not sure whether it was the Southern Cal Edison Company's report or whose, but I read several, and all of them became thick tomes: here was John Brown who would take equipment number 335B and drive by and pick up George Jones and they would then proceed to someplace else.

BASIAGO: Too thorough?

JONES: Yes, too detailed. By the time the thing got off the press, George Jones had died and Sam Brown had been transferred and the vehicle had been traded, and so even if anybody had time to read it, they wouldn't-- So we were determined not to get into that kind of picture, and we wanted something that each person could read in simple language and would direct him as to what he should do. As you just pointed out in your question, it started out with instructing everybody in case of either a natural or a war disaster that the first thing they were to do was to look after the safety of their own family. Once that was

taken care of, they were to report to their normal working location, where their normal supervision, tools, transportation, and so forth would be, and where they could be directed for the work. Failing that, we listed the other major installations so that they could pick one out close to home, or wherever it was, and report there and let their presence be known. And then, of course, we had our own inner radio communications with standby generating power, and we had several sources where that headquarters could be moved in case one was destroyed. It was the same up and down the aqueduct. There were some differences; there were certain places where radio transmission was blind on the aqueduct. So we set particular places where cars with radios would proceed to in order to be useful. There were blind spots all up through there, and you had to go to some place where-- However, there was a very simple little booklet--I must have a copy here somewhere--a simple little booklet, just a few pages long, that was on a wire spiral thing. Everybody could slip it in their pocket, and you could read the whole thing in three minutes. All it was was a series of guidelines. The first chance, I guess, we had to thoroughly test it, throughout the system, was again-- It seems like I harp on this quake of '71 a lot, but it's only during a time of natural disaster or a wartime disaster that you really test your organization. It's also the same truism that the measure of any water supply is your driest year. I'll come back to that, because we had to measure that. It worked beautifully. They did show up and they did look after their families and so forth.

BASIAGO: You mentioned that part of it involved every DWP employee, or at least official, having a battery radio at home. Was any commercial radio station or channel in Los Angeles isolated as the channel of emergency operation?

JONES: All of them.

BASIAGO: So how does that system work?

JONES: But they went onto a common channel.

BASIAGO: Oh, so in an event of a nuclear or natural disaster, they're going to throw some switch somewhere?

JONES: I don't know how they did it, but they all went on to a single type of operation.

BASIAGO: So they're just turning on the radio following--

JONES: Yeah, turn on the radio. You hear now every once in a while-- If you ride in the car with your radio on, you'll hear, "The following is a test. This is an emergency test and--" [makes beeping sound] You know, and so forth. "We wish to stress that this is only a test. This is the civil defense network." That's still in operation.

BASIAGO: So I was thinking that there might have been some big booster station on a hill somewhere, and maybe one of the stations was going to override all of the others.

JONES: It may have been. I've forgotten. I can forget easier and faster than I can learn.

BASIAGO: Getting back to the 1971 quake, there was a lot of damage, particularly around San Fernando and Sylmar. Wells became inoperative, water hammers were created in certain pipes and blowing the valves off of them, and Bob [Robert V.] Phillips mentioned how some water basins were pitched up in the air by the vibrations and fell back down and got crimped all the way around.

JONES: Storage tanks.

BASIAGO: Storage tanks, right. Were any new technologies implemented after that to protect storage tanks, pipes, valves, and that kind of thing?

JONES: No, it was no real new knowledge, but we did implement some things that were helpful. What it brought to the front was what we knew, actually knew subconsciously, but had not paid to much attention to, I guess. I don't suppose

that's really a good statement, because we were aware of normal earthquake design and structures and so forth. But one of the things we've now begun to stress is where your pipelines and controls connect to the storage tanks and reservoirs. Because one of the truths that became so apparent was that nobody designs anything that will resist old Mother Earth when she begins to shake. The only thing you can do is to design something flexible enough to ride with it. So, yes, we did change our controls at the point of contact with the surface tanks. We put in flexible joints so that it could move vertically and horizontally without shearing off. Now, what Bob told you was certainly correct. One of these big tanks out in the westerly part of the Valley, and also the one above the filtration plant in the upper part of the Valley, they were thrown up in the air, and they went up and they pulled all the anchor bolts out of the concrete. When they came back down with those thousands of tons of weight, this just put an accordion pleat in the tanks and down the walls, broke the tank loose from the pumping plants and the pipeline. We have since made these connections more flexible, so if they move up and down and back and forth they will have a better chance of surviving. You can do that by putting on so-called dresser couplings and solid bolting behind them, so the bolts would hold them from blowing apart but at the same time will allow them to move up and down like so. And you put one of these on each side of each of your gate valves and any other connection so that you have about three or four of them in a row. That will leave you enough flexibility, usually, to move with them.

BASIAGO: Were there any flexible sections added to pipes?

JONES: Well, not particularly. Years ago, when we were putting in cast-iron pipe--and it still, in general, is the best type of pipe in the system--we used to solid-caulk the joints. It started with lead, and then they discovered that there were undesirable elements in the packing material with the lead. So they quit

that and went to a mortar packing, where they took a practically dry cement, about 6 percent of water, and caulked that. When it was set up, it was rigid, absolutely rigid as the pipe. We found that we got water-main breaks under those rigid joints by the differences in temperature, because it would put an elongated stress on cast-iron pipe, which is designed mostly to take compression rather than tension. We'd get "round about" breaks when we changed from the warm water of summer to the cold water of winter, and it would break them apart. So what we've gone to now is a rubber-jointed pipe which allows for considerable flexibility. One of the things that happened during that quake was, not only did the ground rise, but in some places it was foreshortened, and there were several places where this cast-iron pipe was thrust clear through a gate valve. Tore off all the stops and everything else and just shoved it right through the valve. It's an eye-opener to watch that, to see the aftereffects when Mother Earth shrugs.

BASIAGO: As long as we're talking about technical matters, when you first came out from Missouri and began work as a well driller, you were using the California method. What were the various methods for well drilling, and how did the California method differ?

JONES: Well, the principal difference between the California method and other ways of drilling was the fact that they used a double stovepipe casing with powerful hydraulic jacks anchored so that they kept that casing pulled down steadily to the bottom. Because they were drilling through a coarse-grained alluvial material, and by keeping pressure on the bottom at all times and using what we called a "scow" type of drilling bucket, they removed a minimum of material. So we had no caving that formed out into the surrounding material. You kept very close track of that in a logbook so that you knew what was at every level all the way down, and then you perforated only those water-bearing

strata of sufficient grain size that could be screened off and form a natural screen for the flow of water into the well. Now, the churn-type drill was in use all over the country, but in most of these cases they didn't keep their casing on bottom. They would drill-- They weren't going through this type of alluvium, and they would drill and then they would put on a bucket and clean out their cuttings and so forth. I know back in my home country they used a churn-type drill, but they ran into limestone three feet down, and they drilled in rock practically all the rest of the way down. Some of their wells were as deep as eighteen hundred feet, but they didn't keep casing on bottom or anything of the sort.

One of the other most popular ways of drilling which was developed for the oil well industry was rotary drilling. It was never very popular for the developing of water wells because it used a hydraulic mud to hold up the walls. They used a dense mud, and the hydraulic pressure would hold the walls apart. And it rotary drilled just like a brace and bit. It would just drill on down and get the material loose, and then they had a pump that pumped the mud down through the bit. It was dense enough so that it would carry the cuttings up with it, and that flowed out through several settling basins and then recirculated. The trouble with that was that it gradually got a thicker and thicker coating, which made it very difficult to log where your natural gravel stratas were, because you had to keep scooping in there, and heaven knows how long you'd been in a formation before you discovered that you had broken out of, let us say, gravel into clay. So they compensated for that by--when they were through--by putting in a preperforated casing, sealing it off at the bottom, then flushing the mud out and gravel-packing the whole thing from top to bottom. When you gravel-pack a well, it's so easy to surge it and what I call "undevelop" it. When you're developing a well, you pull the fines in and leave the coarse-grained material outside so that you form a natural filter around the outside. Now, if you gravel-

pack a well where you haven't drawn the fines in from the material, then if something happens--your pump cuts off and you get a surge, and you pull it again and it cuts off and surges--you have a tendency to push your gravel pack out into the natural formation and pull the fines in closer. And it makes it far more fragile in operation than if you get a good development through surging either through a preplanned screen or a perforated-casing type of thing.

BASIAGO: You mentioned in the first interview how one thing you discovered is how nothing you learned is ever wasted, and that you always put what you learn to use later.

JONES: Yes, that's right.

BASIAGO: Now, was there ever a time when you were doing something or forced to learn something that you thought was entirely inane, that you later, to your surprise, employed? I know that's a tough question. It's very general, but--

JONES: Well, undoubtedly there have been a number of them, but I've been surprised how often something that at the time you thought all this was a lot of bunk, but it came to use. Well, in my own career, for instance-- Up through my freshman year in college, I was preparing for a career in journalism. I had been hauled in by Odds McIntyre--I thought he was great--and a few others. My interest lay more in feature writing than in news reporting. I wasn't particularly interested in that. But it had always been my plan to go to the University of Missouri and take a degree in journalism and work in that field. I hadn't projected much as to where I'd find employment, but I found early in my career that the ability to write stood me in very good stead, the ability to write a memorandum that was easy to understand. So when I determined I wanted to be a part of the water supply picture for Southern California and changed my course to civil engineering, one of the things that helped me the most and

allowed me to get my head a little bit above water was journalism. Actually, I had had a little training also in public speaking, and that helped in oral communication. Those two, which at that time seemed very farfetched. Because at the time I was taking civil engineering, the engineer was supposed to only carry a big slide rule, walk around the campus, and grunt when spoken to; he wasn't considered to be a person who communicated well. But that's a good example. Good communication is always very valuable.

There are a lot of other things that I've learned through the years that you think at the time-- I used to tell my superintendents and senior engineers and so forth, I'd tell them to remember--and at that time we had fifteen hundred people in our organization--to always remember that we had fifteen hundred minds as well as the brawn. We had the minds of fifteen hundred people. What they might consider the dumbest of their day laborers could probably tell them things that they never heard of before. I really believe that. I don't believe there is anything you ever learn that sometime or another in your lifetime doesn't become useful. It's an amazing thing how it will pull you out of some tight squeezes sometimes. I don't think of any other immediate examples, but all of these things help.

What also helped me, the fact of those eight years that I spent as a laborer before I got into the engineering ladder of promotion. It was a tremendous help to me years later in dealing with the labor forces in my own organization. I recall one time I was waited on by a little group from down at the central district. They gave me some kind of a high-flown grievance and told me what this one said and what that one said, and I knew it was a lot of malarkey. So when they got through, I looked at the fellow and said, "Now, would you like me to recite for you the actual conversation that went on?" He looked at me and he said, "How could you?" I said, "Well, I'll just show you." And so I did.

BASIAGO: From memory?

JONES: Using their terminology. I knew in a given situation about what these fellows would say. I had spent so many years out there, I knew what their attitudes were and so forth. I recited for a moment, and he thought for a little while that he'd had a snitch somewhere along the line. I told him, no, I spent eight years on the working end of a pick and shovel, and I said, "I know the way people think and I know the way they talk, so don't try to give me any bullshit about it." They also lapsed into their vernacular. Those guys, I think their mouths dropped open that wide. They didn't know that I knew one end of a shovel from the other. But all these things are helpful. I bet you've had the same experience yourself.

TAPE NUMBER: IV, SIDE ONE

OCTOBER 17, 1985

BASIAGO: You mentioned you once heard a talk by J.B. [Joseph Barlow] Lippincott about his understanding of the whole total picture, total water picture, in the great Southwest. He spoke on our great Southwest water problem.

JONES: Yes.

BASIAGO: Do you remember any of the regional understanding that he had, some of the things he spoke about in Southern California?

JONES: No, not precisely at this stage. That's been forty, almost fifty years ago. He stood up there and spoke about all the different areas in the Southwest. We're talking about Arizona, we're talking about Nevada, we're talking about central California, Southern California. And he could recite their principal economics, the amount of water available to them and when and where it might be in jeopardy, the entire economics of the whole situation, what would happen if they did this and did that. It was just absolutely amazing. He walked up and down with his hands in his pocket and recited all of that, from having not only been in charge of a lot of the work and working in it, but deeply, very deeply, interested in it. He was an amazing man. He had a tremendous mind and he could take a lot of apparently uncorrelated things and bring them into focus. He was a man of great stature.

BASIAGO: Is there anybody today who has that comprehensive understanding, any authorities that you respect in that way?

JONES: Oh, there are a lot of people that I respect a good deal, but you realize that I was looking at him as a young man just really beginning to accumulate his knowledge. I don't think it's possible in today's society for any one person to cover as much territory as JB had covered, because it was common in those

days for an engineer to work for somebody like the federal government--let's say the [Federal] Bureau of Reclamation--and also maintain his own private offices and his own private practice. It was also very common for attorneys, which were scarce, to act as city attorney and also carry on a private practice right in the same town. That's still done to some extent. I know as recently as thirty years ago, I knew a man in private practice in the city of Compton who was also the city attorney of Compton. JB, for instance, was a consultant for the city of Los Angeles [and] at the same time supervising engineer for the Bureau of Reclamation. But he could handle these, and he kept the offices separate and was careful not to have a conflicting interest. Under today's guise, I suppose a lot of the things that he did would be considered a conflict of interest. Today if anybody sees where there was an opportunity for somebody to have a conflict of interest, they're damned for it. Whereas in his day, honor meant a great deal, and he was an honorable man.

BASIAGO: I'm curious about some of the intellectual curiosities of J.B. Lippincott and William Mulholland and H. [Harvey] A. Van Norman. You mentioned that Ray Goudey created a small reclamation project on the head waters.

JONES: Headworks.

BASIAGO: Headworks of the aqueduct.

JONES: No. Maybe I didn't make that plain. What we called the headworks was where the headworks pumping plant was, and that was really the head of the so-called river system. That was westerly of the Victory Boulevard bridge, maybe a half mile. It was on the Los Angeles River.

BASIAGO: These guys being amateur scientists, if you will, gentlemen scientists, renaissance men, did they have other intellectual curiosities like this? Little projects related to the water field but not strictly confined to getting the water to this city?

JONES: Well, not that I know of, but I do know that Mulholland's mind was always busy about new and innovative ways to get a water supply and also to make the finest use of it. For instance-- Now, the [first Los Angeles] Aqueduct had just been completed in 1913. Water was first sold for domestic purposes in 1915. By 1922 we had a dry year. And he could foresee a drought and the growth that was taking place, and he started in way ahead of time to see to it that we would have a water supply that would meet these growths as they came into being. In 1922, for instance, he knew about the meeting--in fact I'm not sure that he personally attended, I think he did--the meeting that was going on over in Santa Fe, New Mexico, between the upper- and lower-basin states, presided over by then Secretary of Commerce Herbert Hoover, where they were dividing up the waters of the Colorado River between the upper- and lower-basin states. This had been called by the upper-basin states, because they could see a development taking place in California in the Palo Verde Valley and in the Imperial Valley. They could see some diversion taking place in the Yuma Mesa, places of that kind. They were fearful that the lower-basin states would get a firm grip on the rights to the use of the Colorado River before they developed to the point where they might need that water, and they would be frustrated by not having it. So they called this meeting. Mulholland always had his eye out for another source, and he always referred to the Colorado River as "California's last water hole." So in 1922 he went over and attended that convention, or had somebody there, I'm not sure which. And he immediately, within the year, sent Sid [Sidney L.] Parratt (who just died here about a year ago) with a group of men down to the Colorado River to survey thousands of square miles between the Colorado River and up through Riverside and San Bernardino counties clear up to Beaumont and Banning--where it tied in to the USGS [United States Geological Survey] survey up in here--in order to

run preliminary routes with the idea of bringing Colorado River water to the city of Los Angeles. Now, this was in 1923 when he put them out there. He also sent some men out there alongside the river to see if they could put in an infiltration gallery, out of the bed of the river itself but off on the flood plain, to see if it would work as successfully as it had out in the Los Angeles River. It didn't; that was a failure.

At the same time, to show you how his mind was working on all fronts, in 1922 he assigned D.A. [Arnold] Lane to make the groundwater studies in the San Fernando Valley. Looking toward using that San Fernando Valley, over which we had what he considered full control of our water right-- To use that for ground storage and to level out, so we could keep the aqueduct flowing the year round, and so we could store the excess waters in the Valley in the winter and have those available for pumping the following summer and not have to leave that water up there--get it down here. Consequently, through that, Arnold Lane became the pioneer in the so-called conjunctive use of water, the use of groundwater storage and surface storage.

He [Mulholland] was a man who was very thoughtful and very-- I never talked technical language with him, but those that did tell me that while he himself was not a technician, nobody could fool him, because he could figure in his head very rapidly. Something always had to make sense; he was always correlating this stuff and--

BASIAGO: Is this Lippincott or Lane?

JONES: Well, both.

BASIAGO: Both.

JONES: I was talking about Mulholland at the time.

BASIAGO: Mulholland.

JONES: Lane was a very sharp little character. He was bright.

BASIAGO: You mentioned that Lippincott had an orchard out in the San Fernando Valley. Did a lot of these guys own San Fernando Valley land?

JONES: Yeah, yeah. Mulholland finally wound up owning eight hundred acres out there, and Lippincott, I don't know how much he had. Lucius [K.] Chase also had some. A lot of people had a little extra money laying around and bought out in the San Fernando Valley. They were running a gamble, but they showed their faith and they bought out the Valley.

BASIAGO: You mentioned an incident up in the Owens Valley where a man by the name of [Ed] Leahy was going to be hung. Did you witness that or was that a story that you heard of?

JONES: No, it's a story that was told to me.

BASIAGO: Why don't we get that on tape?

JONES: Oh, we didn't get that on tape?

BASIAGO: No, that wasn't.

JONES: Well, this was during the so-called Owens Valley wars. Ed Leahy was a red-headed Irishman with something of a hot temper. He was, more or less, in charge of the work going on up in the Owens Valley. Even though much of it was directed from down here, he was on the grounds and so forth. Well, tempers got to flaring up there, and the farmers had come down and had dynamited one of the siphons, or one thing and another. They grabbed him-- I've forgotten all the details of it, but they grabbed Ed and they brought him down there and they were going to hang him. He let out the-- I don't know anything about this. I'm not a Mason, I know nothing about Masonry. But the story goes that he emitted the cry of a Mason in distress. These guys that were about to hang him, a lot of them were Masons, and it brought them to their senses and they didn't hang him. The feelings were running real high, and Ed wasn't the calmest guy in the world. When he believed in something, he went

after it. And these people were under stress. The bank [Inyo County First National Bank] where they had put all their money and savings--and even the money that we had paid them--had been doing a lot of playing around with worthless mine stocks and things like that. The bank went broke, and so they lost all their money. So they had neither the ranches nor their money, and they felt that they had been double-crossed every way they turned. Feelings were running awfully high.

BASIAGO: You're speaking of the Watterson brothers [Mark Q. and Wilfred W. Watterson] up there?

JONES: Yes.

BASIAGO: Do you think they embezzled the funds of the Owens Valley ranchers because they had been peddling mining stocks?

JONES: Yeah.

BASIAGO: That's the first I've heard of that. That was their motivation first?

JONES: That's how the story goes. I wouldn't verify that, but they-- The other story is that the way they kept their bank open for as long as they did was that they had, I think, three branches there. I've forgotten which towns they were in anymore, but let us say one was Lone Pine. As soon as the bank examiners were through, somebody took him over for dinner. And the rest of them hauled money out of this bank and drove like hell up to the next one and got it in there in place, so that when the auditors came in they found the amount of money that would check out. I think maybe it was Ed Leahy that got on to this and squealed on them. That's why the banks went broke. That may be one of the things that turned the farmers against Ed.

BASIAGO: Because they thought he was responsible?

JONES: They thought maybe he'd pulled the plug on these people and they might have weathered it and come out of it if he hadn't pulled the plug on them.

But I don't know that to be a fact, that's conjecture on my part. These others are only hearsay stories.

BASIAGO: I'm kind of curious about the "Protestant establishment" in terms of its power in Los Angeles, let's say. You have a series of white, male fraternities here: the California Club, the Los Angeles Chamber of Commerce, the men who built the aqueduct and some of the other individuals in town who bought up San Fernando Valley land through the San Fernando Land Company, and the Masonic lodges of course. Where was the intersection here? Who were the men who were in the California Club? Were Mulholland and Lippincott and all these gentlemen Masons?

JONES: I don't know about their Masonic [connections], I know nothing about that. Where I was born and raised, these kind of things formed a very minor element, and I never even thought of it. So I don't believe-- I shouldn't say I don't believe. I don't know anything about Masonry or what part it may have played. But I do know that Mulholland and Lippincott and [Lucius K.] Chase and a lot of very eminent men belonged to the California Club, and they had a mutual trust in each other. I think a lot of the municipal decisions--not by any sneaky, underhand, crooked way, or anything of this sort--were because so many eminent men belonged to this California Club. I think that a lot of the decisions affecting the city were made right there in that club, because of their eminence and their sincerity and their capability. It was pretty hard in that kind of a case-- And another reason why I think the city was so clean was that it's pretty hard to pull any shenanigans when you have some of the finest and highest-quality people that are close friends and are in a position of power. I know that Lippincott all of his life was a great letter writer, and anything that happened in the community in which he had an opinion or which he had knowledge [of], he didn't hesitate a moment to write a long letter to the mayor or to

somebody else or whoever else was affected and reveal that opinion. And he was respected. These people were active, not in the political sense, but in the general community sense. Maybe they're the same things, but politics, at least in my time, had taken on a little different kind of a view. It has nothing to do with being Democratic or Republican or anything of the sort. It had to do with what they deemed was the best for the future of the city. They had tremendous courage. Just think back on the courage those people had. Here was a town of two hundred thousand people who believed--without precedent anywhere in the world--that they could go 250 miles north and bring that water down across the deserts, the mountains, and so forth. Of course they engaged some of the best engineering minds in the world to do so, but as one of them wrote-- I think it was Dr. John R. Freeman. He said there are no new engineering principles involved here. The Owens Valley is higher in elevation than is the San Fernando Valley, and the laws of gravity are still in effect, but the logistics, the know-how and the savvy and the overcoming of the physical itself-- The fact that they believed that they could do that is a greater miracle than even its accomplishment.

BASIAGO: When they were laying pipes, how long were the sections? Ten feet?

JONES: Well, in diameter-- Tremendous pipe. And to think that they could get that up onto the desert! Look how restricted they were in such things as transportation and communication. They had developed a few very crude automobiles. The old air-cooled Franklin was one of them, and the Model T Ford, and I don't know, maybe half a dozen that long since have gone down the drain. But they were very crude things, and railroads weren't exactly the last thing in transportation. And communication-- The telephone had just made its advent. So to think that they could do this and overcome all of these problems--

They went up there and built a cement plant. They laid thousands of feet of pipeline. They went up Cottonwood Creek and built a generating station in order to power their dredges using electrical power. That was the first time it had ever been done in history.

Actually, the Caterpillar tractor came into its own with the building of the Los Angeles Aqueduct. Mulholland inadvertently named it. He was watching them as they unloaded them at Mojave off the train. In those days they had the back tracks, but they were guided by a long cantilevered nose that went out front with a sharp disc wheel on it, and they turned that wheel up there, which by the long leverage would pull the thing. A far cry from the individually-braked type of thing we have now. We unloaded them up there at Mojave and they started crawling up across the desert. Mulholland was watching, and he said, "I'll be damned. Looks like a bunch of damned caterpillars." That's where it got its name. They picked it up and decided to call them the Caterpillar tractor. I read that as a matter of record in the history of Mojave written by a guy up there. I've forgotten his name and the name of the book.

BASIAGO: Do you think these men envisioned a metropolis of eleven million in the county now?

JONES: No.

BASIAGO: Mulholland really loved Los Angeles as it was, as a *pueblo*.

JONES: Right.

BASIAGO: Do you think he'd be shocked and saddened by the sprawl today that the aqueduct has made possible?

JONES: I don't think so, because he himself instigated the Metropolitan Water District [of Southern California]. He started the ball rolling, for the reason that when he first looked at the Colorado River as the last water hole, his first thought was to get that strictly for the city of Los Angeles. Then he began

taking a longer look at it, and he realized two things: We had already become 485 square miles in size, and in the first place, to build it was going to strain the bonding capacity of the city to the limit. Secondly, if we held on to it, where everybody had to annex to the city to get water, the city itself would become unmanageable.

This is a philosophy that was pronounced at that time by Lippincott clear back in 1904. It's one that I think is wonderful, and I think it still holds to some degree. In 1904 Lippincott wrote the city of Los Angeles a report where he and [O.K.] Parker-- Lippincott and Parker had investigated all the water supplies from as far north as Ventura and as far south as the Mojave River, and evaluated what water was available all through the San Gabriel Valley clear down to this area and inland as far as the Mojave. They recited what each of these basins was capable of producing. A lot of that was deduced from very sketchy records, but those men had wonderful insight. Their judgements were real sound. And then he made his statement. This is what I'm building up to. He said, "We find enough water in these locations"--and he thought of where they were--"if filed upon immediately and developed and brought to the city of Los Angeles, it would be capable of maintaining a city of two million people. But we advise against it, because should we do this, Los Angeles would be like a jewel blooming alone in a desert." Citrus culture had begun in the San Gabriel Valley. And he recited where it was and what took place, and he went on through Orange County and these other areas and recited what was taking place there. He said, "If we take those waters now, development there will cease, and it is my recommendation that we look afield to import water from some area of surplus." That's when it was decided to go to the Owens Valley. This was in the year later, I guess, when they decided. Now I can't think of his name. He owned that ranch up there, the city engineer.

BASIAGO: Where? In Northridge?

JONES: No, in Owens Valley. Oh, he was a former city engineer and mayor of the city of Los Angeles, Fred Eaton.

BASIAGO: Fred Eaton.

JONES: Yeah. That's when Fred then came forward with his idea. But this is the philosophy that I wanted to get across. It was that he recognized that we were a community of communities and that we were tied together in terms of economics, and that for us to rob our neighbors, we would eventually hang ourselves. So when it came time for us to develop the Colorado River and bring it in, the same philosophy began to apply. So what did they do? Here were all these other blossoming areas, and they needed water also for their growth. So they got thirteen original cities together to originally underwrite that. It's the same principle, and Southern California has since pretty much hung together. They only deviated on the [California] State Water Plan, and that was because we got a movement in here of what I call the extreme conservationists. They're not conservationists. They're not true conservationists. They are extremists; this is all you can say for them. Eventually, that will straighten itself out, but we're going to--in my view--we're going to have some very, very bitter times here before it does straighten itself out.

BASIAGO: Do you believe the environmentalist movement will become more dominant?

JONES: No, I don't think they will become more dominant, but I think it's going to take an extreme drought and a lot of suffering before the majority of the people see how ridiculous some of their stances have been.

BASIAGO: What water sources are we talking about there? Mono Lake?

JONES: We're talking about California water sources right from central California itself. There is enough water being wasted through the Golden Gate every

month to fill all the needs of Southern California for a year. That shouldn't be, that's wasted. That's not a reasonable beneficial use. Sure, it may flush San Francisco Bay out, but it's not a reasonable beneficial use.

BASIAGO: What are you saying? Water that's being pumped out through the Golden Gate Bridge?

JONES: Oh, just flowing out. It's just going to waste. It's not being diverted.

BASIAGO: Why is it being allowed to do that?

JONES: Well, because we can't get California together to vote to construct the proper facilities to bring it south.

BASIAGO: Oh, you're talking about the Peripheral Canal now?

JONES: Yes.

BASIAGO: I didn't realize it was flushing out into the San Francisco Bay.

JONES: I suppose it does flush it a little bit, but it doesn't need all that flushing.

We can still get all the water we need and still flush the damned bay.

BASIAGO: You mentioned how, because of the environmental movement, environmental impact reports have become mandatory, and they're quite expensive and often a project will be scotched because of the costs already spent in assessing what the project will do, besides just constructing the thing. Are there any other things, the modern way of doing things, that you think are wasteful in terms of operating procedure that the department has to go through?

JONES: I'll have to think about that a little. There may be other things, but it was all started by this extreme environmental thing. So it has become almost commonplace now for us to take what I call endless steps before you actually get down to doing anything. It's just throwing good money after bad, and it's tremendous waste. The way it is set up at the moment, almost anybody-- They don't have to know anything. All they have to do is get some attorney to get

some fancy language and say that the environmental impact report is insufficient because they forgot to count the number of hairs on a skunk's tail, that it might be 50 percent less than what had occurred if they hadn't done this, that, and the other. It's a ridiculous situation. We're just throwing away lots of money, and people find it very difficult to come to a decision because they're immediately thwarted in everything they try to do.

However, history seems to prove that we always have men of stature who develop and come forth and have sufficient patience and knowledge and so forth to weather these kinds of storms. I have the faith that we'll do it. I have the faith also that our people will, in times of real stress-- As I've told you before, when we get into actual real stress, ordinary people become noble men and women. It's an amazing thing to observe, but it's true.

And I think a lot of these people don't understand. I'm going on television here on Monday to interview a man who is presently the general manager of the Moulton-Niguel Water District. We're going to again bring home to the people here, graphically as we can, the very necessity to keep themselves informed and to back the people of judgement who are trying to do things constructively for them in Southern California with regard to the water situations. I think that's what needs to be done. We have, more or less, for too long a time--I'm not speaking of Water and Power, I'm talking about the Southern California water establishment--leaned too heavily upon the reputation that was developed by men of great courage such as Mulholland, Lippincott, and others that were true pioneers. We've assumed that people will back these kind of things. It's only lately that we've realized that we too have got to get to work and keep this constantly in front of the people. We're not good publicists, we haven't been historically. I'm not talking about the department--the department has done a fair job--but the waterworks industry as a whole. I went the other day to listen to

a man who had been hired by Metropolitan, who will now, more or less, oversee a speakers bureau which they are developing. He spoke to our Kiwanis Club, and I went up afterwards and spoke to him. I only had a minute, but I told him this, and I fully believe it: If he is to be successful, the Metropolitan home office can't carry it by themselves. What he has to do is get a speakers bureau, if it only consists of one man, in each and every member organization and each and every user of Metropolitan water in Southern California. For instance, right around where we live, I think the water companies that are administered by MODOC (which is the Municipal Water District of Orange County) include somewhere between twenty-five and thirty individual water companies. But MODOC is the only direct member; they administer it for all this grouping. Now each of them, the Moulton-Niguel, the El Toro [Water District], the Aliso [Water District], Santa Margarita [Water District], the South Coast Municipal Water District, all of these ought to have a speakers bureau. Every one of them ought to have a publicist so that this knowledge is kept in front of the people all of the time. Because all our enemies had to do on the Peripheral Canal--and they did it beautifully--was just cast some doubts about the total cost that it was going to be. They weren't factual--what the hell. It was the biggest bunch of malarkey in the world, but they kept hammering away on it.

BASIAGO: What do you think their motivation was?

JONES: They wanted to destroy it. They didn't believe in it, they didn't want it. They wanted to leave that water up there. The poor fish were going to gasp for air. They thought that Southern California was too big already. Their own views. One of the things that people always wanted to say-- They have this view that if you control the water supply, you're going to control the population and you're not going to grow. That isn't true. The only way you are ever going to keep from growing is to monitor the bedrooms. [laughter] It's going to

happen, and you better have it so it's the best life possible by having the resources there that will take care of them. It may be true that you won't attract as much outside industry. Or with so many people moving in, let us say if this becomes a damned miserable place to live-- But who wants to stay in a place that's a damned miserable place to live? We've honestly gone forth. We've developed this, we've paid for it, we've brought it here. And, damn it, we've got to protect it. We've lost half of our Colorado River supply to Arizona. The state hasn't been able to build the facilities to keep up their contract. If a heavy drought were to hit us within the next three years, believe me you're going to see some real suffering. We've got to be prepared for it. And it takes now-- What it used to take a reasonably-- The original Los Angeles Aqueduct was built in eight years, and this was using mules. The Metropolitan aqueduct all the way from the Colorado River [Colorado River Aqueduct] was built in about six years using the better equipment. It takes you now ten years, damn it, just to get your environmental impact reports cleared. It costs you more for environmental impact reports than it cost to build the damned aqueduct from the Owens Valley. So we've got to cut out a lot of this damn foolishness.

BASIAGO: Do you think that we will be driven to having to implement the Peripheral Canal?

JONES: Oh, sure. A lot of people are willing to give up, but I'm not. I don't believe it. I think that when it gets hit hard enough and the people up-- Part of the problem we had on this thing was that the farmers, the big corporation farmers in the northern end of the San Joaquin Valley, didn't want to make all the concessions to Northern California that were required. And that's why they put a lot of money in to defeat it. They didn't want to make all those concessions. They wanted their price, and they're used to having it. So they defeated it, figuring for sure as hell that pressure, sooner or later, was going to develop it.

And I agree that it is.

The only alternative is to build right through the [Sacramento River] Delta. And that delta, those farms that are there in the delta were created by building these dikes, which were made of dredged-up silt out of the bottom of the delta itself. The material, which is peat, that they've been farming in dries up and blows away, so it lowers an inch and a half a year. My god, some of that is five, six feet below the riverbed now. Those old dikes were never built to resist anything, and they are always breaking. If we try to put a channel through there to try to increase that flow to divert south, we're going to have to also repair and maintain and build all those levees, which will put an additional burden on us which we shouldn't have to bear. It just isn't right, and besides that, it isn't as efficient.

If they come around, they can flush these side channels that will keep the fish from getting so damned bewildered, and fish life will be better and everything will be better if we go to the Peripheral Canal. So I'm still an optimist enough to believe that we've got enough people with good sense and that when the chips are down under a hard drought and people are faced with hard reality that they will do it. I don't believe that we have given it up. I think we will do it, but we're going to have to suffer. We're going to get more water from the Colorado River than it looks like right now, except in a drought year. Because in extremely wet years there will be excess water, even after Mexico and Arizona get what they can use. For a few years Arizona is going to run wide open, because their groundwater basins are down and they're going to be running every damn drop they can get for a while until they get restored.

BASIAGO: You're talking about Phoenix and Tucson. The megagrowth there looks pretty dangerous in terms of the water situation.

JONES: Yes. So they're going to take every drop they can get. If there is any

excess, they will store underground or they will do some damned thing with it. When we get into the next wet cycle, there will be water available. Met [Metropolitan Water District of Southern California] is working on several phases right now. One of them is to line the canals of the Imperial Irrigation District and get the water saved that has been seeping there and bring that in. One of the things I think they're overlooking, and I think will defeat them in this score even after they spend the money, is the fact that as soon as they start doing that, the Salton Sea will begin to drop. When the Salton Sea begins to drop, then the salt content and mineral content will accelerate very rapidly and all fish life will disappear. The people that have invested money down there and have built homes all around it and now it starts shrinking, they will raise more hell than the alligators did when the lake went dry, even though it is a worthless pool. Because they have got money invested and homes and all this sort of stuff.

BASIAGO: That's where the Colorado River terminates? Why is the Salton Sea going to--?

JONES: The Salton Sea is 147 feet below sea level. Don't hold me to that. It's 140-something below sea level. It had shrunk to just a little old acid pool until after the formation of the-- It had been formed originally by a break in the levee around the Colorado. And the river had flowed back north, and they filled it up and created this. Well, they got that shut off, and it began to shrink down to a pool, until the use of the water in the Imperial Valley, both from the seepage out of the unlined canals and by the irrigation use, had developed the groundwater so high that it was getting into the root zones with such strong alkali that it was all going back. So Raymond Hill was engaged to go down there, and he developed a drainage system whereby those farmers put drain tile all through that area and drained it back to the Salton Sea. That's when the sea began to rise.

It would still tolerate fish life, so they got it populated by corvina, which is a game fish, and some other fish, and it became a desirable place. Some of the real estate subdividers got ahold of the land around it and developed it and sold it off as resorts for summer homes and all that stuff.

Well, now Metropolitan, with their going ahead-- This is my view; undoubtedly they've studied it, But if they can save, let us say, 150 second-feet by cutting off the seepage out of the canals, it's also eventually going to cut 150 second-feet out of the flow into the Salton Sea. When that occurs, the Salton Sea is going to begin to shrink, and when it does-- It already has been increasing rather rapidly in terms of dissolved solids because of evaporation. If they now cut off the supply and it begins to shrink, the concentration is going to become very critical quite rapidly. When it was first proposed down there and subdivided, a friend of my wife's worked for the real estate firm that was promoting it, and she wanted us to buy some land down there. I said, "Nothing doing." I could see exactly what's going to happen in just a few years. That land is going to be worthless, and I want no part of it. There's going to be a fight there before this thing is over.

The other thing that Met is doing is developing an interest in other groundwater basins such as the Chino Basin, where they will, whenever water is plentiful, pump it and store it there. So we are going to create some new water law and a lot of new innovative ideas. And we'll meet the challenge, but it's going to take a lot of blood and guts before it's done.

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