Voices from the Past

Water Regulation in Rexburg, ID

Interviewee: Delbert Armstrong

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Tape #124

Oral Interview conducted by Harold Forbush

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Harold Forbush: A project in oral history of the Upper Snake River Valley, this Saturday the fifth day of May 1984. It's my opportunity to welcome here to my home office Mr. Armstrong and we are going to primarily focus on the importance and significance of water to the city of Rexburg; the water utility and related utilities. And we will seek to explore the information, the personal knowledge that Mr. Armstrong has in this subject since he was involved with this over long period of time. Mr. Armstrong, will you state your full name and the place where you were born and when you were born?

Delbert Leroy Armstrong: My name is Delbert Leroy Armstrong. I was born in Parker, Idaho on April the 19th, 1904.

HF: And your folks, your parents had to move to that area about what year and from whence had they come?

DA: In the late 1890's they moved from Southern Utah [?] Cedar City Summit area and settled in Parker and moved back and forth from Parker to Rexburg twice, I think, in a period of a year or two.

HF: What motivated them to come into the Upper Snake River Valley?

DA: They had heard there was unlimited opportunities up here. My father was a blacksmith and he had that in mind when he came to this valley to set up a blacksmith shop, which he did in Parker.

HF: Was this one of the early, very early blacksmith shops over there?

DA: Yes, one of the, one of the first in Parker. He did work in Rexburg for Jacob Brenner, who was a blacksmith and also [Labelle] blacksmith for a short time.

HF: Now did he ever establish one of his own here in Rexburg?

DA: Not in Rexburg.

HF: Did he continue then to work for Mr. Brenner and other blacksmiths or how did he earn his livelihood?

DA: Well, he ended up working for himself, he set up his own blacksmith shop in Parker and then when he moved away from there, he went, we moved to Lorenzo; and he set up a blacksmith shop there. He then worked in Rigby in a blacksmith shop for a man by the name of Hobbley. And he worked there…

HF: H-O-B…

DA: H-O-B-B-L-E-Y, I think. After that he filed on a dry farm, area up southeast of Ririe and that is about the end of his blacksmithing only for himself.

HF: Now, in the mean time, you were acquiring, I guess, some fundamentals of education; what formal education did you have and where, where did you get your schooling, which communities?

DA: My elementary schooling was scattered over Jefferson County; pretty well because we lived on the dry farm in the summer time and came down in the winter time to go, we'd go to school and we went whenever we could get a place to live. There's included Milo, the Buck School, and later on we bought a farm on Butler Island, which is just two or three miles straight north of Ririe; and the Butler Island school is right on the corner of our property and I finished my elementary school in that school.

HF: It might be kind of interesting to recall some of your schoolmates on Butler Island.

DA: Well, the ones I can recall are the ones that graduated with; there was five of us in the eighth grade that graduated. Harold Tillman was the only other boy, and there's Alta Stone and Zella and Ann Clark were the three girls that were in the class. Mrs. Butler was our teacher I remember, she was a wonderful lady.

HF: Now pursue, finish end up your school high, your formal education, comments on your formal education

DA: My, I finish my high school at Ricks College, came up here for four years through high school and one year of college at Ricks College.

HF: And, let's see, what year would that be, your college?

DA: That started about 21, 1921 and my last year here was to Ricks was 25, 26. It was at Ricks where I meet my first wife.

HF: Tell me about the circumstances, who was she and when were you married and a little about that?

DA: She was May Johnson, she was the daughter of E.W. or we called him Rash Johnson that lived out at Burton. And she worked for Carlo Rigby in the hospital as a practical nurse. She was working there and staying with the Rigby's at the time she was going to school when I had first met her. And we were, well we took part in the school play at the last year that we went to school and it was fatal. We married that same year in 1926.

HF: And from, from that marriage there were some children born, were there not?

DA: That marriage there were two sons born; Dee and Burt. Dee lives in Iona at the present time; he has been an educator, he's taught, been principle and superintendent there in the Bonneville district. My son Burt is in Los Angeles area, he works for Lockheed Aircraft as an electronics engineer.

HF: As previously announced Bud, and incidentally everybody, everyone down through the years knows, known you as but Armstrong. How, how did Bud come to be tacked on?

DA: I have to blame that onto my youngest sister, she's just younger then me and uh she wanted to call my brother and that's what she ended was buddy. And so that struck with me the rest of my life; I was always known as buddy. When they called me anything else I didn't know who they were talking too.

HF: I had an experience of going through the phone and trying to find Bud Armstrong and couldn't and I had to get Argus Clingler who's present wife son to gave me some direction. I'll have to make that confession, as announced though we were gonna be involved in focus, focusing on the importance of water to the residents of Rexburg. And first recall when you first commenced to work for the City of Rexburg, under what circumstances?

DA: I started to work for the City of Rexburg in the fall of 1932. I was working on a farm at that time, but we living in Rexburg, and I received word that the city had an opening for a night policeman. So I immediately came home and applied to the job and received the job. Rarla Clark at that time was chief of police and he was working from the late afternoons till midnight and I came on late in the evening and worked on through the night until morning.

HF: Who was mayor at that time? Do you recall who the mayor was?

DA: Arthur Porter Jr. was mayor at that time. I have served under tall mayors, the first one was Arthur Porter Jr. and the last one his son, John Porter.

HF: That's interesting and that would cover a period from 1932 to 19?

DA: 1979.

HF: 1979, remarkable, wonderful. Now your duties of course were law enforcement at first, is that correct?

DA: Right.

HF: And you didn't have a squad car to drive around in; how did you perform your duty?

DA: The only conveyance they had of any kind that belong to the city at that time was a little Ford Roadster and that was used for what the use they had to have for police work and also water works and others that had to have transportation and emergency or anything like that; that was the only car that they owned. But my job was foot work, I during the night I checked all the doors and all the business establishments in the city. Going up and down alleys maybe two or three times during the night, that was my, one of

my main jobs which was good because it, it keep it awake and when I first started that was quite a problem.

HF: What protective equipment did you have? I suppose a gun, maybe?

DA: I carried a gun with me all the time.

HF: Do you know what kind?

DA: It was little .32 automatic.

HF: Did you use a club or [sappen?] or anything, one of those?

DA: I had a club that I carried also.

HF: You were in a uniform.

DA: No, the only uniforms we had were caps that….

HF: How many years did you serve then under Chief Police Plot?

DA: Well, just about a year, maybe a little less. At that time I was transferred to the power department. I was assistant fire chief under Ray McIntire, his assistant had resigned and so the mayor appointed me to that job.

HF: Just the two of you.

DA: There was just the two of us. Ray McIntire acted as day police as well as being fire chief; he was on police duty during the day time.

HF: And I' am assuming that with just been the one fire equipment vehicle.

DA: There was only one vehicle at that time.

HF: Can you describe that a little bit?

DA: It was a American La France truck and it had hard tires on, there was no [pneumatic?] tires on top because at that time I remember. It was about like driving a lumber wagon down the street, we; you could get it up to almost 35 miles an hour but it'd almost jump off the street, but just driving it, you had to be pretty careful with those hard tires.

HF: Was it capable of well the amount of water that it was capable of, of spraying or admitting in a given period of time, can you give us?

DA: Well let's, it'll depend on the hydrant that you hooked to it, it depended mostly. The source of water depended on the stream that you, the size of the hydrant and the size of the water main--the amount of water you get out. But I think it was rated 500-hundred gallons a minute that the water was available, that the pump would pump that much.

HF: Now in '33 there were hydrants that were used, you didn't have to pump from an open ditch or anything of this nature.

DA: In certain areas we did pump from canals and ditches but the main part of town, Main Street and out both ways did have fire hydrants at that time.

HF: Was the fire department your employment then, you weren't doubling in duties or anything, were you?

DA: Yes, at the time McIntire could spare the time to come to the City Hall and stay to cover for fires. I'd go out with the city [flusher?], they had a big flusher, you fill up water and go out and wash the streets down and flush the streets. And also sprinkle some the areas where there's unfinished streets and dusty streets, so that was a duty that I had at that time.

HF: Mr. Armstrong could you recall now specifically when you focused your full-time on the water utility?

DA: That was in the spring of 1935, Mayor Harlo B. Rigby was a doctor, had became mayor, appointed me to the job of water superintendent; replacing the man that had the job before, E.J. Cabble.

HF: How do you spell his last name?

DA: C-A-B-B-L-E I think, they called him Lij, his, I think his real name was Elijah, his first name.

HF: And so what, what equipment did you have then to assist and what was the task?

DA: The equipment that I fell heir to was very limited, as I remember I had there was two small pipe wrenches, pipe threading ratchet and a half inch and three-quarter inch head and a hacksaw was about the size of the tools I had at that time, but I had some very good councilmen that were concerned about giving me things so I could do the job. Glenn Herdti was one of them as I remember and H. Lester Petersen told me to go ahead and get what tools I need to do the work so that I could do the things that needed to be done. And it wasn't long after that, that the city bought a pick-up truck for me to use so I'd have a place to carry my tools and have a pipe vice on the truck so I could really go ahead and do the work that needed to be done.

HF: There were to some extent water mains that had been installed in the city and were being used by business houses and residences I presume.

DA: Right.

HF: By this time.

DA: Yeah.

HF: Can you recall just about the extent of those?

DA: Well their first water system was established to back in from 1905 to 1907. I remember and that was uh, uh they drilled their first well on the corner of uh 2nd East and 1st South. At that time they didn't have the drilling equipment we have nowadays and they, they blasted with powder drill and shoot down to 50th feet until they struck water and uh then set the pipes, pumps down to the bottom of that pit and pumped the water into a the mains which consisted of a 12-inch line that went south up on the hill to a reservoir that they built at that time. At as I remember money that was expended at that time for that water project was around $25,000 [?] for that amount and they'd run their main lines down Main Street, the big lines 10-inch, 8-inch, and 6-inch and 4-inch. And they branched off on College Avenue, there was so small lines on Center Street and to began with, that just about comprised the water system. They added to that as the years went on, a block or two at a time.

HF: Do you recall the capacity of that first storage tank?

DA: I never did know exactly what it was. It wasn't a very large tank, they built it to, dug a hole rectangular hole and slope the walls so they could cement the walls but the ends were perpendicular, up and down; but I think it wouldn't 150,000 maybe gallons when it was full.

HF: Was it covered over, was it completely, was the water enclosed?

DA: Not in entirely, it [smit?] up to the surface, then it was covered over with a wood frame and uh then galvanized tin on top of the wood and the window in each end for ventilation was screened. It was open to dust and other things and I found when I first started that it was in kind of bad shape; the screens had got knocked off; as I remember my first inspection I got a rabbit out of there and that was one of the problems with that old reservoir was uh rodents, mice and squirrels that we couldn't keep out.

HF: Now the main, water mains came from that reservoir and went down more to the place where they were used and, and so the pressure was build up by reason of the, of the what do they call it, the elevation.

DA: Right.

HF: In other words your storage was what, three, four, 500th feet? Would it be that much?

DA: No, as I, just trying to recall what the actual height of that was but the lower 200 feet I think for that from uh downtown area to, to the reservoir, as long as we keep water in the reservoir we had adequate pressure on the lower areas.

HF: For culinary purposes.

DA: For culinary purposes.

HF: Now this is for drinking purposes and, and the water that was used in the homes and the in the businesses, business houses.

DA: Right.

HF: And now going back just a little bit. We, of course all realize that when the saints and when Rexburg was settled at a very early time there was a diversion made from the south side of the South Fork of the Teton River and water was brought down from that diversion into the city.

DA: Right.

HF: Can you recall and share with us Mr. Armstrong some of the, well the main, the main diversion canal and, and then the laterals that were developed to take water throughout the city.

DA: At the time that I started to work for the city as I remember going to the head of that city ditch, we called it; there's an area where Martin [Abbe's?] farm is. In fact, several of the farmers along that city ditch used the water out of it for irrigation their farms and that was over the years, they depended on the city ditch for their irrigation water and it came down through those farms and into the city on the north east corner of the city, the old Mill Hollow area and came around the point of the hill there where the new high school was built at the present time and on into the city. And there were side ditches among almost every street in the city, some areas they, well most of the areas they went down the side of the street. A few places they went through the middle of the blocks, but it made it possible for most everybody within the city to have access to the ditch water for irrigating purposes of their pastures and their gardens.

HF: And cows.

DA: And cows.

HF: I guess cause I, a lot of residents early in the day at that time did have a cow out in the backyard that provide the, you know, the milk, isn't this true?

DA: Right, in fact when I first came to Rexburg I had a cow; in fact I had several cows later on, [but one day?] I had them outside upon the hill. But a lot of people had barns

within the city when I first came to the city and had cows and horses and chickens, things like that.

HF: And do you, do you personally recall of seeing a number of private wells, domestic wells on, on this lots.

DA: When I first started to work with the city the private wells were pretty well gone.

HF: By 1935 they were pretty well gone.

DA: Right, but I, not I don't remember myself but I remember my folks talking about the wells at the time they lived here. The wells became contaminated and there was a big problem with uh typhoid epidemic and they had to [?] a project cleaning up the wells and trying to stem that epidemic within the city.

HF: Do you recall personally when you moved into Rexburg of seeing that little outhouse in the back?

DA: Very few; there were a few, not really very many. At the time WPA and PWA was established getting people work that had some of those came into town that were approved by the health department. It was put up a certain way, had to be sanitized and that but there were a few of them, but very few that were needed within the city.

HF: Were the residents using cesspools by that time, some of them?

DA: Yes they were.

HF: Now describe the function of a cesspool and how it's laid out.

DA: Well a cesspool is made--you take the raw sewage from a house. There's two or three different types, all of them. You have the type that you could dump it direct into a, that call a regular cesspool and….

HF: A hole is dug.

DA: A hole is dug.

HF: And a framed up maybe with rock.

DA: Either rock, cinder block or whatever is available to make it so it's the liquid can seep out through the walls and the solid just keep in there where they digest themselves.

HF: And when they don't digest themselves that occasionally have to be cleaned out by and hauled away.

DA: Right, they have to be pumped out and hauled away, disposed of.

HF: But the theory is, the runoff would be taken care of in a field type of an area and the ground would absorb it and, and properly take care of it. And the solids would be consumed by the bacteria.

DA: Right, they have a, what they call a septic tack that they started to use later on. It came it use and that was a, you run it through a septic tank, it retains all the solids and liquid goes on, off either into another tank or into what they call a grain field which would be pipes that run for a distance out through the area and the liquid would be absorbed into the ground.

HF: And this was a great improvement over the old cesspool.

DA: That was a big improvement.

HF: And I could imagine that many people were using the quote septic tanks even into the, what '40s and '50s and '60s maybe.

DA: Correct, there was a large area of the city that didn't have sewers in at the time I started to work for the city. There was I'd say better than 50% of the city that didn't have sewers at that time. But later on they had a lot of big sewer projects that pretty well took care of the city.

HF: Now going back for a few more questions pertaining to the surface water did, was there somebody appointed by the city to regulate the flow and the use of the surface water throughout the city.

DA: Yes, they had a ditch master or water master, they called him that was appointed each year during the irrigation season that would and turns were assigned to people according to their needs. Whatever they wanted to buy a turn on the ditch for an hour, two hours, three hours whatever, whatever size pasture, garden they had. And so these turns would be allotted to these people and they were allowed to use the water for that length of time and then their supposed to turn it off and let their neighbor have their turn.

HF: Now when you came on board in 1935 were these some of your duties to have a ditch rider or water master to regulate these items?

DA: That wasn't included in my duties; my duties were mainly with the pipe water.

HF: Oh.

DA: The ditch water was put under this ditch man; the man at the time the first year I was on was Rex Leathan, he was the ditch man that took care of that surface water.

HF: And the surface water I guess was pretty well distributed throughout the city, within the city limits, was it not?

DA: It was, there were ditches everywhere. In fact that was one of the problems that begin to hurt the people, was the ditches running in front of their places. They begin to have a campaign to cover the ditches and a lot of them were covered. They had covers, cement covers, and pipe put in and covered the ditches up.

HF: Now there's one more question that I would like to ask you. We talked about the Rexburg ditch that had it's diversion from the South Fork of Teton, but there was another maybe much larger diversion that bought water through a big canal, kind of on the north side of Rexburg. Kind of the parallel the Teton River and then went through the city and on out to the farms. Tell me about that, who owned that and what was its purpose? When was it put in?

DA: I don't know exactly when that was put in; it was here when I came to the city. But it was as I remember the Rexburg Irrigation District, it was [?] with that canal. There was a group of farmers, large farmers that had to have that water. And it was came along the north side of the city in south on 3rd or 4th west and divided. Some of it went west to the farmers and some on out further south to the farmers to use for their irrigation.

HF: Now, the city didn't have a diversion from that canal or for, for city use though, did it?

DA: The only diversion the city had was on the south end there where the city ditch use to run and there was two or three farmers in that area that did use water from the city ditch. When the city finally cut the water off from the city ditch, they made arrangements with those farmers to put a pump-in out there and made arrangements with the Rexburg irrigation district to pump out of their canal for these farmers to use so they have irrigation water.

HF: Can you fix a time Mr. Armstrong when surface water from the old Rexburg City ditch I guess cease to be used in the city?

DA: Give me a specific year it would be a little bit difficult, but it was right after the new high school was built because we had to cut off part of the old city ditch as it went around the point of that hill where the new building was put in. And put a pump in and pump up over the hill, supply the few people that were still using it within the city limits, so it was only I'd say two, two or three years that we used it that way then it was completely cut off. That was time when they had to make arrangements for the farmers on the south end of the ditch to get water otherwise.

HF: Now let's focus more on the history of water mains and water through wells being furnished to water users within the city. I know that you commented that up here on 2nd east and 1st south, the pump house. Now can you give me that date again when that was installed?

DA: That was installed between 1905 and 1907, they called for bids in 1905 to give them an idea what it was going to cost them for the project, they had it outlined and they

sold bonds for $25,000 which they figured would cover the cost of putting in the system. And so in 19 I think it was 1907 when they was able to start using water from that system that they put in.

HF: And that was the first project for actually the city through city supervision of placing water to the use of residents and business houses.

DA: Right that was the first water project within the city. That set up an ordinance that gave, set up charges for the water which was a kind of to me it was little, little different then we do it now because each business, residence, stockyard whatever was charged. It was specified what they was charged and they actually had to charge for when they had a toilet or a bathtub. It was a lot of them at first had one tab in the house or the building and there was a specific charge for that. If they had a toilet and bathtub while that be an each charge of $0.20, $0.15 a month for those.

HF: Now paralleling that first water utility project, was there one for a limited sewage disposal?

DA: That didn't happen until 1919, but the first sewage disposal system was set up and they discovered they had, had to have some way of getting rid of the sewage in the city sot that project was started in 1919. As I remember they bonded the city, a general bond for $70,000 and the bids that I saw in the minutes, the lowest one was $170 some odd thousand dollars. They went ahead with the job and I think what happened they had to [?] what they had in mind at first and that went on for three or four years and they found other sources of finance to expand and complete what they needed but most of it was done on Main Street. The initial plan was--there's a shore line on, on each side of Main Street down the alleys and behind the businesses, the one of the south, one clear to the passenger Depot, then back into the middle of Main Street. The one on the north clear down to 3rd west then back into Main Street and they went down to the center of Main Street to the edge of the city, then swung over to on the north side of the street and went clear down to the Bell corner or the 1st road that go to Hilbert; then angle off across the field and emptied into the Teton River at that point.

HF: They must have installed some treatment of facilities along the way to take care before it emptied into the, the river I guess, to some extent.

DA: At that time there was no treatment whatever.

HF: No treatment.

DA: There was raw sewage that went into the river.

HF: Into the Teton River.

DA: Completely raw, it was just, and was what later on had to be taken care of because the health department eventually decided we was dumping too much raw sewage into the river and they required the city do something about that.

HF: So later on they commenced to use the, the treatment pond I'd guess you'd call it.

DA: About 1963 when the State Health Department had been putting pressure on the city before that and they decided to hire engineers to make a study of what they could do; what kind treatment they'd use. And they hired a firm in Boise, Cornell, Holland, [Aide] and Maryville they made the study, and that's what they decided on with the Lagoon system would be what they would go to begin with to treat the sewage which consisted of a large pond and three small ponds that the sewage went through and by the time it got to where it went into the river, it was pretty well purified as along as it was the Lagoon's worked properly. As it goes into the Lagoon the, the sewage is disposal, eaten up by bacteria. Aerobic bacteria are kept alive by the algae in there that creates oxygen within the water, as long as that oxygen supply is there the algae will thrive, and this aerobic bacteria will dissolve all the solids in the sewage and take care of it. But that oxygen in the water isn't there in the winter time which froze over, it'll go to anaerobic which makes the smell in the sewage.

HF: Thank you for that explanation, it's quite complicated and yet it's amazing how well that works.

DA: Right.

HF: The Lagoon system.

DA: But now the latest thing that they've done see, this last big project they had where they bought Sugar City into the Rexburg sewage system into the Lagoon's, they put in a big system; aeration system where they run the pipes through the one Lagoon and pump air into there to supply the oxygen so they have oxygen all the time. Near winter and summer and so it keeps it working pretty well.

HF: And that was an installation that was made probably about 1978 or '79 following the Teton Dam flood.

DA: Yeah, it was later on at about '82 I think, '81, '82 somewhere around there.

HF: When it was?

DA: Completed that.

HF: Fully completed.

DA: Yeah, [?].

HF: Mr. Armstrong you have described the first city water utility, the project, do you some minutes to indicate the 2nd big project for water utility.

DA: Well, one of the, 2nd thing that was very important was getting rid of the old (chuckle) wooden pipe, that happened of course early when I first started to work that was about 1939 that we finally got rid of all the old wooden pipe. That was a continual pain in the neck to me because it was leaking all the time. It leaked from the time it was put in according to the man that was before me.

HF: That was Elijah.

DA: Elijah Cabble.

HF: Uh um.

DA: And Peter O' Thompson was one before him, the first one was a man by the name of Johansson and they all had the same problem of trying to keep that wooden line from leaking so much water because they just, they just couldn't do it.

HF: Both the main lines coming down from the storage and the laterals were, were the laterals a little lateral?

DA: None of the laterals were [?] that was the only one was from the pump to the reservoir, but I succeeded in changing that from wood to [cast?] iron to help with some the councilmen that agreed with me that we had to get rid of that constant leak [we's?]. They lost enough water through that wood pipe to have bought cast iron to begin with, so it wasn't.

HF: What size of pipe?

DA: It was twelve, twelve-inch pipe.

HF: And it was cast iron.

DA: Cast iron, right.

HF: And did, at the time of its installation did the manufacturers indicate the longevity use of that?

DA: Well.

HF: Twenty, thirty years or so.

DA: At that time I made quite a study of pipe, steel pipe verses cast iron and uh all the information I had to get from people who had used the pipe and manufacturers and all that... Cast iron pipe would out last any other pipe comparable in cost two or three times

over, because it was thicker. If you made steel pipe as thick as the cast iron pipe it'll cost so much you couldn't afford to put it in, so that. And there made up different, the steel pipe is flat; flattened out and rolled. While the cast iron is poured and it's more of a grain and it don't flake off and don't rush and flake off like the steel does; or the cast iron is really almost a lifetime pipe. Our only problem with that was that the first we put in the cast iron was all lead joints and that is a problem when it goes under a street because the vibration of the traffic on the street will cause those joints to loosen up and they had to dig them up and tighten the lead. Now they have the pipe that it all neoprene joints examined together and there's no leak there and the neoprene will last as long, fact as long as the pipe and its easy to install and very seldom you're every get a leak and a joint.

HF: With your cast iron installation in 1939 I believe you mentioned in the project were there were replacements of the old wood pipe then conveyance to cast iron, did they extend the water facility a lot in that particular project?

DA: No that was, at that time, that we had to concentrate on that. It was very expensive but as the years went on [cuts out].

HF: Now by 1939, will you recall at that point, just what the water system was in the City of Rexburg. Perhaps, the old reservoir had been added to, maybe some storage tanks above ground, [brought?] more of the city had been [bought?] under the benefits and blessings of, of a water system. Just relate to Mr. Armstrong if you will what things were like in 1939.

DA: In 1939, there hadn't been much done to the water system outside of this project of getting rid of the wood pipe. But later on as I recall it was 1946, '47 that we installed a new reservoir. This was a lead out by contract and Davis, Davis Construction did this job and it was a cement reservoir completely enclosed which was a quite a relief to me to get rid of the old reservoir cause there's no problem with this new reservoir with any thing getting into it; it was completely sealed in.

HF: Was it the same site?

DA: [It's?] the same site just south of the old reservoir.

HF: What they do, fill the old one in?

DA: Fill the old one in, torn it up, fill it in. And the capacity of this new one was a little over half a million gallons.

HF: And how did that new reservoir get its water?

DA: Through the same way, through the pumps that were already there.

HF: From the pump house up here.

DA: Pump house on, on a 2nd east and 1st south.

HF: Any new more, didn't they have another well; was that the?

DA: There was other wells drilled later on, the first one was in Porter Park 1950. A soon after that reservoir was built we drilled on the south east corner of Porter Park.

HF: And pumped water into that new.

DA: We pumped into the system, see the thing you needed to do is just pump into the system; the surplus water would go the reservoir and what wasn't being used would go into reservoir and fill the reservoir up. When the reservoir was full then the pumps would shut off.

Unknown: [Eddy or Eddie?]

DA: That was the first time we had anything that was anywhere near automatic before that turning the pumps on and off was, had to be done manually.

HF: By 1950 then you had some automatic, an automatic system.

DA: Had one pump that automatic that was at Porter Park.

HF: Tell me about that park, who determined to place it there and how deep did you have to go and how much water did it pump, if you have those facts?

DA: We, myself, councilmen talked it over and decided that would be a good place for her. In as much the park used a lot of water and during the summer months it'd be, a lot of the water wouldn't be going to the reservoir; it'd be just going direct from the pump into the sprinklers on, on the park. And so that's how we decided to put that one in there, it wasn't a big one. We went down, around hundred feet before we hit lava and of course there was water even before that which is sub water below that. But what we had to do is, [?] the surface water out down at that point [they sprung a?] They had a 24-inch casing down that far then we changed to a 18-inch casing inside and then submitted them in and [?] it so the surface water couldn't get inside of that there to contaminate the water. But the water when we finally finished the well down to about 170 feet in that area, the water raised in that well within to begin with at about 20 feet of the surface, so we only had to set the pump down about 45 feet below the surface. So there was underground pressure there that pushed the water up so we didn't have to set the pump. The type of pump we used there was a pump that set in the water all the time. The other pumps that we used at the old site, were pumps we had to use a vacuum pump on to create a vacuum in the pump to pull the water into the pump before we started to pump.

HF: What of a pump do you call that?

DA: Well, their both actually a centrifugal, but the one centrifugal from old type didn't sit in the water.

HF: I see.

DA: It was on a, it was on a frame, a motor in the pump or on a frame but the most all the new type pumps are what they call a deep well pump and that goes down with the shaft, that goes to the pump clear down in the water, where the water is.

HF: The one, the well at the park was it electric, was it electric motor?

DA: Electric motor, right.

HF: Now the one up the first at the pump house, it must have been gasoline or something else?

DA: Well, the first I know, I was the first one that was there. I think they were all electric.

HF: Oh, is that right?

DA: It was all electric. They told me a little bit about the first one they had was what they call a cylinder displacement pump where it pumped, cylinders pumped the water. It wasn't a centrifugal pump but they had to replace that before I came on the job, when I came on the job they two pumps; one was run with 100 horsepower motor. With the shaft it went down the bottom of the pit there, it still had to use a vacuum pump to pull the water into the pump. And then they had a smaller one, a centrifugal down at the bottom there where the pump and the motor was on a frame; that was only a 40 horsepower motor. Both of them we had to prime before we got started.

HF: Ok, now continuing on with your description of the facilities in the city, you mentioned that the Porter Park which was really developed by the mayor in 1932, and '33, it'd that right about that time.

Unknown: Mayor Porter actually developed that park; he had to haul water by hand. I'd heard them tell stories that he had his kids out there, (Laughter) hauling water to those trees so they wouldn't die.

DA: Mayor Porter was instrumentality in really fixing that park, getting the trees planted on it and all that and he did a wonderful job. There was an irrigation ditch that run right on along on the north end of the park at all times. It made an irrigation season water was available out of that ditch, in fact one time they, they watered a lot of the park from that ditch. But later on I think it was when J. Fred Smith was Mayor that I put in some pipes across the park and established some big sprinklers to cover the whole park, so it'd sprinkle it from water pipes.

HF: Now that would have been about what years?

DA: Let's see, J. Fred was Mayor about 1953, `58 I think.

HF: And that's when the sprinkling system was installed in Porter.

DA: Right.

HF: How about up there at the Smith Park.

DA: Now that was installed later on.

HF: Later on.

DA: When the city took that over and made a church gave that to the city to make a park out of it. Then they, then there was sprinklers installed there; in fact they drilled a special small well finally to irrigate that park from a well, had the well all by itself, it just, all they used it for was for the park, its still there.

HF: It's still using.

DA: It's still using.

HF: They still use that.

DA: Right.

HF: I see.

DA: They only had to drill, only had to drill very far and they decided that was one of the cheapest ways to go instead of using off the existing culinary water pipes just to have a separate well for that next couple of weeks.

HF: Ok, so by 1950 then they had the two wells that provided water into the system and they had this new storage reservoir. Was that above ground, much of it?

DA: That was all, most all of it above ground. The upper side, course it sit against the hill there, and the upper side wasn't much of it sticking out of the ground but the lower side was pretty well above ground.

HF: Now, there's one question that I want to insert here, by 1950 had there been consideration given to treatment of the water, fluoridation in the water?

DA: We talked about fluoridation at that time, you probably know Dr. Rich had made quite a study on what fluoride would do for the teeth and we had talk some about [fluoridating?] the water, but we had some opposition to it and we kind of let it [rot?].

But later on that was taken care of because we drilled a well up by the new reservoir by it because Dr. Rich had encouraged us to do that. He'd had made studies and found the wells on the hill all had a good content of fluoride and he'd encouraged the city, talk to the, some of the city councilmen and the mayor and that; encouraged us to drill a well on the hill to see if we would find water that had fluoride in it. The college had already drilled a well in '57 and found out that it had well less then 1.5 per million, which was pretty good, I think it was about nine-tenths and one percent. But we finally did need another well so we did drill by the reservoir and we found--when we tested that water that it had just about the exact amount that was ideal, which was 1.23 as I remember at that time. But which was an ideal amount [?] ideal amount was from 1.0-1.5 and one and a half and that water in that well was just ideal for fluoride in the water.

HF: Now, have you had to put any chlorine in the water at all?

DA: The only time we were ever [chlorinated?] is when we put in new water lines, we chlorinate the new lines thoroughly and at the time of the flood we had to chlorinate the reservoir to eliminate any possibility of contamination within the system on account of some many water lines were broken. The service lines were broke and the houses were washed away, it was a chance of contamination so right after that we, we don't add any chlorine at all for the water.

HF: Now, but will you trace the expansion of the, of the water utility, the, your employees equipment, some of the personnel, just, just relate how its grown since you took over.

DA: Well, I went through a number of years without any, any help, that is any regular help, you called an assistant. It wasn't, till… I was trying to think of the year. I hired Reid Nelson as my first assistant, I think that was in 1956 and he was with me only a couple of years and he had other things he wanted to go to. And I hired Fred Clemons, was with me for.

HF: That's C-L-E-M

DA: C-L-E-M-O-N-S.

HF: M-O-N-S ok.

DA: And he was only with me for two or three years. Then Jerry Brian wanted to come with me, he was already on the fire department, he was a regular paid fireman on the fire department. He transferred to the water department and after he came on we added one or two more manly, they were the going and coming most of the time. They, usually we couldn't pay them enough and the sums of work they had to do was kind of not very enjoyable work like digging leaks, getting down in the mud holes and getting down in the sewer man holes. Helping clean sewer lines, and that's another thing I might mention, we didn't we really didn't have any equipment until [along?] it the--I guess the late '50s that we had equipment; mechanical equipment between sewers. We finally got

a sewer rotor that we run by the motor, before that we had sewer rod that we had to operate by hand between the big lines and that was quite a, quite a job, but over the years we, we did get up to one time I had four men working under men. That was the largest crew that we, we had and we did a lot of the installing water lines and sewer lines around the city and when I had a crew that was big enough but later on that all became, it was all let to contractors. The [Lob?] Brothers, [Barracks?] you know did one job on a [f?] account they, they laid a lot of [surlines?].

HF: This would be [Lo Barrack?].

DA: [Lo Barrack?] yeah.

HF: And his son, Jerome.

DA: Jerome Glenn Hunter [Wollard?], machine operator, he run their [?] line and their. And I think a man by the name of Davidson run the [?] line at one time [?] and the bulldozer and that, it made it; later on there was a it seem like later years [Harklo?] H & K Construction Company from Idaho Falls kind of took over most all of the contract work in the city when they call for bids [?] usually a low bidder, water and [?] done a lot of work here in Rexburg, putting water and [serlines?] in; a major big, big projects that we'd have [mountain climber?] [?] by the [Hartwell?] Construction.

HF: How early did the city install water heaters?

DA: That was started even before I took the job of [?] that started in 1934. Well and even before that they had meters in the business houses, business. All the businesses in town are pretty well metered on Main Street when I, I took on the job of superintendent but there wasn't any of the residential. In 1934 they started to completely metering the city; I, in fact I helped build some of the old wooden blank boxes that we used at that time to install the meters throughout the city. Later on we went to found out we could get cement boxes built in Idaho Falls, cement [?] company down there built the boxes for us; 18-inch inside diameter and two foot ninths that were used for [either?] box. In the [?] down there we helped cast iron beds for us [?] had to hold a three-quarter inch [?] one-inch meter [?] inside.

HF: Now, what would be the difference, for example, isn't it so that the, that most well. The meter's going regulating and metering the water going into homes is on a what, three-quarter?

DA: Mostly three-quarter, three-quarter or one-inch.

HF: Into the homes?

DA: Right.

HF: Now into the business houses, is it bigger or the same?

DA: It depends on the business; a lot of the business houses actually don't use a great deal of water. Most of them have restroom facilities and that's about all they have. They don't use a great deal of water, [well they use a lot of water why'd they go to larger meters?] and there from one-inch up to high, two-inches.

HF: Of course, your big apartment houses now where the main pipe I guess going into that apartment house they, they would call for a larger [?].

DA: Yeah, most, most of them would have. Well, one-inch meter would handle a lot of apartments with the pressure we had at this time especially we, we had three pressures on in the city, it was kind of established the last, just the last few years since they put the elevated water tank up high where that subdivision is out there. Where the AAMR Corporation owns that property and there's another reservoir right there by it, they'd cement [pre-stressed reservoir?]; that's where the middle section pressure from the new [?] steel reservoir now down by the old, where the old reservoir was supplies the lower area. So there's three pressure zones that are separated.

HF: And the city of course coming to this area, I mean what, what are the three huge, huge tanks up reaches up into the air up there.

DA: There was the two tanks sat on the ground, the one down by the old site that supplies the lower area here is a steel tank but it sits on the ground, sits on the surface. The two up above, the one, the cement, pre-stressed one sits on the surface too with dirt built up around it. It holds two million gallons, the one down by the old site holds one million and then there's the elevated tank that the upper area that's set up in the air quite a little ways. [The pressure goes up on it's own there?] and that is only 250,000 thousand gallons that it holds.

HF: But it's the highest one [?]

DA: It's the highest one, it serves the highest upper area there. Even [?] kneel pretty close to it and still get some pressure from the water.

HF: Well, now can you call, you've mentioned some names who work with you. Jerry Bryant was one of the last names you mentioned. Others that have joined the force, co-workers..?

DA: Well….

HF: Employees?

DA: Employees of the city I can remember quite, quite a few of the old employees that won on the ditch, Rex Leathan, Carl Petersen, Sanford [Pencock?]. On the streets is Roy Sultan, Thomas X. Smith, Alan Winters, Gordon Smith, Dan Molten, and the garbage and man by the name of [Higbee?], Frank [Quicstead?], Charley [Neder?] and City Parks,

J. U. Jolly, [Nailen Ure?], Lou [Delisbe?], and City Office, clerk, and others. Tom Richmond, [?] McKinley, Edna [Detric?], Edna [Hex?], [?] Rigby, Beulah Johnson, and [Rolla Bag?] [?] the names that I can remember that people that I.

HF: Work with quite a bit.

DA: Quite, quite a bit.

HF: Down in those years from 35 to what you say 79.

DA: 79, I retired from the superintendent of water in '74 but I stayed on till '79 as pluming inspector that was one of the things that happened in the years I [were or worked?] there. They passed a law that on pluming had to be inspected; in fact the pluming law and state and the cities had to adopt a pluming ordinance. At the time that they adopted the ordinance was in the late '50s and I began a pluming inspector along with my other duties and in the city I took the exam and I think in '64 in fact it began a bona fide pluming inspector.

HF: I want to compliment you Mr. Armstrong as we've gone along here, you've responded to some of my kind of [bongle?] questions with the expertise that you have exhibited in talking about the stresses of pipe and the longevity of installed pipe and comparing steel with cast iron and, and the pressures [of /and?] pumps and what they'll do. Did you have any formal education to acquire some of this or did you just kind of pick it up as you went along.

DA: Well, probably that's what I did is picked it up as going along. I learned the hard way, when I first started to work for the city I had to learn everything right from the ground up because Mr. Cabble that was on the job I worked with him two or three weeks before, helping him on different things. But he never did give me very much of his expertise; he was getting pretty old and actually there was no--they didn't even have a map of the water works at that time I ask for one and he said well they didn't have one and later on I did get one because I went to Sunburn in Idaho Falls, told him that we didn't have any map. He was a engineer, [?] had done engineer work for the city and he immediately got me a copy of the city water lines and that.

HF: Give me his full name will you, please?

DA: I think his first name was Clint; he was the father of the Sunburn's that are down there now, [?] boys. [?] The one son I can't think of his name, I got pretty well acquainted with him, but the father is Clint Sunburn. He lived here in Rexburg for a while I was going to school, in fact I lived neighbors to him in Rexburg when I was going to Ricks.

HF: And so you acquired a map of the, of the water utility, the mains and [?]

DA: [?] and all the mains that were in existence at that time.

HF: Would that also include the sewer system?

DA: We did, we had a plat of the sewer system, the original plat that was made up by original engineers [Hu and Theol?] I think was the engineers on that, that made it up and we lost that plat in the flood. We do I think they still have a copy that wasn't complete as that plat was, it was made up as a very good plat of all the original sewer lines. I remember when I first started to go to Ricks up here to high school; they were still working on the sewer lines on the hill doing rock work. All the sewer lines up there are very, quite shallow because of the lava rocks that bring them there and that were still installing sewer lines in that area. I tried to get a job within that time [they'd?] give me a little extra money when I was going to school but the lines down. The original big lines downtown in that truck line were all deep, they run from eight feet to the deepest 18 feet down by 5th west and the [?] contour of the ground. And I interesting note that I discovered in those days they didn't have the big the equipment, the bigger the trench; they take most of it by hand and they make a hole and [?] it up to keep in from caving in, [?] it up with [?] and go down in tunnel and make another hole a ways further and then tunnel in between them and lay the pipe and pull the [?] out and [?]

HF: It's amazing isn't it, 10, 15 feet below the surface.

DA: Right, and just amazing how, how they did the job and the outdoors pipes in as good as they did. There was a lot of infiltration in those pipes we found when we started to put in the lagoons and treatment plants that you have to find and treat them to keep the surface water, sub water to rise up and get higher than the sewer lines and then filtrated into the sewer line, and that caused problems with overload our lagoons because we was getting a lot of sub water in, in the lines.

HF: Have the original sewer pipe [bo?] been replaced or is there still some of it still in there?

DA: Well, most of the original pipe is still in place from it, the only part that's been replaced is from 3rd west to the gold course where the [?] station are [?]. It all, all the sewage in the city now goes into a [?] station that pumped up to the lagoons, its right there on the corner of the golf course that one. There's another [?] station in on the north side of town where the Sugar City line comes in and all that area is quite deep and it goes into a [?] station that's pumped over to lagoons, so. [?] whole new line from 3rd west to that pump station.

HF: Is it correct to say that the sewer lines are on one side of the street ordinarily, and your water mains are on the opposite side of the street?

DA: Well, not necessarily but try to keep them separated as much as you can. In fact, the cold calls for at least 10 feet between a sewer line and a water line. Try not to, not to run the sewer over the top of a water line if it's at possible, if they do have to cross with

the [shoreline?] above the water line they usually require that in case another pipe [?] any chance of cross connection there, have a leak or something [?] in the water.

HF: Contamination, yeah.

DA: But there's, I might mention when I say contamination of the water; over the years we have been, the city has been sending samples of water in for inspection to see whether there's any contamination in the water.

HF: As a matter of fact, isn't that mandatory?

DA: That's mandatory, that, that started way back when you know I was on the first start to send them in. We send them in to the state then, started to send them to Boise, then we send them to Pocatello. I think now there, I think [?] and Perkins has, has it set up out here. I think their testing some of the samples, I might be mistaken on that but that's what I use to do when I, the last one's I sent in was sent to Pocatello, [?].

HF: When did the city install their first storm sewers?

DA: That was that big well the first storm sewers were [?] very limited amount, I can't tell you exactly the year that we did at the time we, 60 feet when we put the lagoons in first and abandoned the old sewer line from 3rd west on out. After that, they did put in some storm sewers on Main Street, run them down and dump the end into the old sewer line from 3rd west so it was going on out to the river. But just recently they completed that big storm [sir?] project, what year was that? '81

HF: Yes, it was after the flood, quite a long time, yeah.

DA: Quite after the flood, the storm sir '81,'82; it was about a three, three and a half million project, that was when that was completed.

HF: So those lines go quite up here on the hill quite a ways to don't they?

DA: Well, it's all, they've got them, some on the hill; pretty well, the city is pretty covered with them, the storm greens right now.

HF: And yet Mr. Armstrong in on these occasional times when we have some [fresh?] with an inch or two of rain come down in a short period of time bringing a lot of the top soil from the farms to the east of here we, we get and see the need that we've got to control that, because a lot of top soil ends up right down in Main Street.

DA: That's right.

HF: [It clogs up thing?]

DA: Helps to plug up the, the drain that go into these storm drains, that's one thing they have to watch so close. That can come down and [?] and dirt and that [clog?] them up and then you have it in your drains. That's quite a problem that they have, someday it's going to have to be solved to keep that surface soil from washing down the city; cause it, when ya keep surfacing the streets going back further and further more surface streets there's no chance for it to sink away in the ground anymore. It's on those surface streets and [?] all comes down, right on downtown.

HF: We've got to solve it; it's one of the problems that the city faces.

DA: Right.

HF: And it's quite a major problem, isn't it.

DA: It is, it's been a problem for a long time; they've tried to figure it out building dikes and that up there, but they'd never come up with an answer to take care of it yet.

HF: Now I want to have you comment about the contribution of [?] this big engineering firm out north side of town. What a contribution they have in behalf of our city, would you comment on that, mention [F?] Perkins, and engineers and what have done for the city?

DA: Well.

HF: What has the city done for them?

DA: Time they came into this area, first time I got acquainted with [F?] was the time we had the lagoon project and this engineering firm in Boise appointed [?] as resident engineer on that job. He kind of checked up things here for them and that's when he first started his first, my first acquaintance with him was on a new job. But over the years they have, there's been just one project after another that they've engineered and set up for the city to go to on water and sewer streets and others that they got federal grants, state grants and all of that. They was right on top of that all the time getting, anytime there was any possibility getting a grant, they go after it and work it into a project on the water lines or sewer lines or streets, whatever. And the years they've been here the city has just completely changed because up, up to that time it was a matter of kind of a starvation diet we was on trying, trying to do things on water lines and sewer lines and that; we just didn't have the money to do it. It seems like since they came in and started getting all these grants and the money coming in. In fact these last project, since the flood we've been exceptionally blessed with a lot of money here in Rexburg through all these big projects; it's mostly been paid for by flood money.

HF: Well, now as we approach the closing minutes of this interview, call, does any anything come to your mind that you'd like to comment on that I haven't triggered your mind on?

DA: I, one thing that I should mention, that we haven't mentioned is the cooperation of the city and the college up here. They at one time when they drilled, I mentioned once about them drilled a well, we used their well for a year or two. In fact, that's what they had in mind when they drilled it was maybe selling water for the city. But there was big problems with it because they drilled right into a mountain of volcanic ash and when we pumped that water, we pumped it into the mains and before we knew it, we had ash in our meters and automatic vials and in our reservoir. And we, I just pumped out thousands of gallons on the surface and run it off in the ditch to try and get rid of that. But they kind of saved our lives between, before the time we drilled our new well at the reservoir site by having a supply of water because we was, we was using right to the limit on the pump capacity we had at that time, but using their well helped us out at that point.

HF: Otherwise you'd had to go on a very severe rationing program.

DA: Right, right we, we was getting loan our old well up there it was getting to the point, it was, the water level in that area had dropped and I was having trouble getting a prime into the pump to use that pump there that was in the. I, I had installed a larger pump in there, I had the two pumps down, one on a 60 horsepower motor and one on a 40 horsepower motor but when it went to Porter Park pump it was still, it was right on the ragged edge of having enough water in the summer time for when people were sprinkling heavy. So we appreciated their, their cooperation; in fact the last big water project that we had at [F?] Perkins, that was engineers [?] where we had big lines. When we put the [?] pre-stressed cement reservoir way up high there and run big lines down to the city, into the college. The college separated, we separated; of course they'd kind of been separated from the city too because we had to do that in order to [?] what they was using to meter it and they stood the expense of what went in on their part of it. In fact, I think that project was around a million and a half dollars and I think they supplied something over $300,000 to pay for the line that went in on the college.

HF: So is it true that the college campus receives some benefits from our city water system and city sewer city?

DA: Definitely, their on our sewer system. We charge for a sewage charge, I don't know what it is now, but they've been charged for a sewage charge according to their use and they still buy water from the city but the city sells it to them as a very nominal cost; over the years as I remember….. pardon me. At first they were selling it to them I think $.05 a thousand gallons I don't just what the rate is now but they've been very [?] with, with the college; they've given them special consideration.

HF: But the college initially rescued the city water system and brought, provided funds, provided water that we use.

DA: Right, that was a very, kind of a life saver or that two or three years there. It was kind of a problem to be because I, I had to run the pump and pump water out on the surface awhile before it turned into the mains to get rid of the, trying to get rid of the volcanic ash that's in there but they were very cooperative and very considerate of the

city and I think there's still talk of selling water to the city in the winter months but I don't think they've implemented that yet cause that have to be quite a change cause--We had to cut their well completely off from the city mains when they started irrigating their farm up there, their farm area with that well and we had to separate at that time because we keep from any chance of contamination [?] of the city.

HF: How many wells actually does the college have up there on their college property?

DA: Just the one.

HF: Just that one.

DA: Yup.

HF: In 1957.

DA: 1957, I think.

HF: The only one, I see.

DA: It's located there on, you probably know where it is between 2nd east and 1st east and 3rd and 4th south, [?] middle of that walk.

HF: I see. Any other items pertaining to the city facilities, water sewer? Now during the early part the 1st or the 2nd World War when the Japanese people, Americans were rounded up and were placed under security in security areas. There was a little scarce up here in Rexburg on the water situation, was, was there not?

DA: There was at that time, everybody thought the Japs was going to move in on us and take over. So at that time we established a guard at the reservoir up there (clears throat). So [?] trying to prevent sabotage, I remember it was I don't know what year. [Ad Hertley?], he use to herd sheep, but he had a camp and they, he took his camp up there and put it right by the reservoir and his stayed there day and night.

HF: Another thing you had commented that in the, one the drawbacks of the first reservoir established was that rabbits or mice or squirrels or whatever would get mixed up and fall down in there and die and so on and it was maybe a kind of sanitation problem. Anything else more serious happen?

DA: Well at one time the people of the city thought I had a grudge against them and had put a skunk in the reservoir. Two or three people called and said they had just took their shower that morning and they got out of the shower and they smelled like a skunk. And we discovered the thing that had happened. There was an overflow pipe in the new reservoir that had [?] into the cement reservoir which was all enclosed and no chance of anything getting into it and but this overflow pipe went up inside to the reservoir and then down and out and across the street and we usually keep that outlet on the other side of the

street with a screen over it. Somehow the screen had got knocked off and the skunks had got in there during the night and evidently had a big powwow and the fumes from the skunk had come up this pipe and into the reservoir and the water had absorbed the smell of the skunks and that water just smelled like a skunk. And the people that was using it downtown just thought I had a grudge against them was getting [?] for something.

HF: (Laughter)

DA: It was quite, quite a coincidence but we had to re-drain the reservoir just as fast as we could, got rid of all that water and [?]. Give it a good flushing, clean it out and cleaned up the junk smell.

HF: But you know, Mr. Armstrong talking about the skunks for a minute, this has been quite a problem with the city down through the years. Skunks getting into the garbage and these big dumpsters and things like that and I know there's been a time or two when the police department has been called upon to dispose of a skunk or two that was suddenly apprehended in the garbage and didn't know quite how to handle the situation but hey isn't this true down through the years.

DA: Right, it seems like recent years I've seen more skunks around then I use to. Seems like they just multiply but there's been a lot of skunks around, around town. Use to be that you didn't see very often but recent years there's a lot of them around.

HF: I want to thank you for the opportunity of interviewing you today Mr. Armstrong, I felt that a lot of information has been provided, evalu[cuts out]