

**ROB WELCH**  
Oral History Interview

Statewide Oral History Project, Abandoned Mines Reclamation Program  
Utah Division of Oil, Gas and Mining

August 20, 2014

*This is Lee Bennett and I'm here today at the Moab, Utah studio of Omni Productions, Inc. to interview Rob Welch for the Utah oral history project. Jim Mattingly is also here and will be recording the interview.*

LB: To get things started, Rob, if you would state your name and your date of birth.

RW: Rob Welch. Nine, nineteen, '51 [September 19, 1951; aged 62].

LB: Ok, and where are you now living?

RW: I'm living here in Moab.

LB: Ok. Have you lived elsewhere?

RW: Yes, I've lived in Montana, Wyoming, Colorado, and Utah.

LB: How did you get started in the mining business?

RW: Actually, my family are all miners. My grandfather was a miner, my father had mined, and we moved to Moab and he [father] went to work at the Moab salt operation, called Texas Gulf Sulphur at that time. He moved here in the 1960s and I came here and went to school. When I got out of school the opportunity for me to become a miner came around, and I took it.

LB: How did that opportunity arise?

RW: Well actually, we had a neighbor that I knew. He had mentioned that they had an opening at Atlas Minerals at one of their mines.<sup>1</sup> I went and interviewed and got the job.<sup>2</sup>

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<sup>1</sup> Atlas Minerals was organized on June 1, 1959 when the five major Lisbon Valley mining companies merged. Those companies were: Hidden Splendor Mining, Lisbon Uranium Corporation, Rio de Oro Uranium Mines, Mountain Mesa Uranium, and Radium King Mines (William L. Chenoweth, Lisbon Valley, Utah's Premier Uranium Area, A Summary of Exploration and Ore Production, Open File Report 188, Utah Geological and Mineral Survey, 1990, pg 23).

<sup>2</sup> By this time the Atomic Energy Commission was no longer the exclusive buyer of domestic uranium and government price supports had ended. Mr. Welch's career as a uranium miner belongs to the period when nuclear power plants were the principal purchasers and competition among mining companies was fierce (Chenoweth, 1990, pg 30).

LB: Had you done any kind of mining before?

RW: I hadn't. I was fresh out of high school.

LB: So which mine did you go to work in?

RW: It was called the Columbia. It was one of the Big Indian mines in Lisbon Valley.<sup>3</sup>

LB: What was your first job?

RW: My first job was a Toplander.

LB: And tell me what that is.

RW: Well, a Toplander, cleans up the place. Keeps the grounds cleaned up, supplies organized and neat. Whenever the miners would need supplies, like roof bolts and timber, and railroad track, those kinds of things, you would gather those supplies and send them down the shaft, then the guy down at the bottom, he's called the Skiptender, he would take the supplies off the skip and send them to the locations they needed to go to.

LB: So there was a stockpile of some sort of supplies on the surface of the mine?

RW: Yes, they kept things like roof bolts, their matting and chain link fence, timbers for building what they call cribs, and fencing when you're underground; those kinds of things. They'd call for explosives so you'd have to send down powder, prell, primer, those kinds of things.

LB: So tell me what the mechanism was to drop things down the shaft.

RW: Well, you have a Hoistman that runs the hoists. You have a bell system right there were people work, where the miners go down or the supplies would go down. You would take the supplies to the shaft, you would call for the cage [by using] the bell system to ring a certain number and the Hoistman would hear that number of rings on the bell, then he would lower the cage to the station. [The cage] would be level at the station so you would put your different supplies, whatever you were sending down at the time. Once it was loaded, you'd ring the bell a certain number again. It's been 40 years and I still remember the rings! It is just like one-two-three-one to go up; one-two-three-two to go down with men on. If you wanted to go real slow you would do one-two-three-one-two-three, and then you would go slower. It would let the Hoistman know that the supplies are loaded, ready to send the supplies down. He would lower them down to the lower station, lower level, and once the Skiptender removed all the supplies he would release the cage with his bell rings.

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<sup>3</sup> The Columbia Shaft, operated by Atlas Minerals, was located in San Juan County, UT in section 27, Twp 29 South, Rge 24 East, and by January 1979 had produced over 100,000 tons of ore ("Active Uranium Mines in the United States," US Dept of Energy, Grand Junction, CO, 1979).

LB: How many levels in this mine?

RW: There actually was only the one level. Once you reached the bottom at the old Columbia you would reach the station, and then they had railroad track that ran from the north end to the south end of the mine. The miners would go their different directions, whoever was working in whichever direction, and they would haul the ore in on the little train. The Skiptender would send the ore out.

LB: So how did they get the ore out if it came in on the train cars? Did they put the train car on the skip?

RW: It was kind of cool system they had, it was pretty unique. After I left my Toplander job I went down and became [the Skiptender]. That's how you start out in mining. You start out as a Toplander and then you worked down to become the Skiptender and then the Motorman, and then you'd end up being a miner doing the different jobs you'd perform doing the mining. They had rubber-tired diesel engine equipment they used to do their mining in the south end of the mine. They would blast it [mine face] and load in on their trucks--what they called buggies--and haul it to a grizzly with a big compartment on an upper level. They would dump the ore into this thing and the ore would go [through the grizzly and] into the big hopper, and the train would drive under the hopper. The Motorman would drive his train under there, open a chute and load that car, close it [chute] and move his train up, load that car, close it, and move the car up, and keeping doing that until [the train cars] were full. And when it [loaded train] came to the station they had these great big pits or running trenches. That had a thing that was called a camelback and the little train cars had a wheel on the side and you would drive through the station, then the wheel would ride up on the camelback and it would dump the ore into that trench. They had a thing they called the slusher, a cable operated mechanism that would have a pulley on one end and the motors, and he had a remote control so he could sit inside this little house that he was working in, he would run the cable and the cable would come back and would pull this ore into a chute, he would pull it into the chute and then when it would get so far he'd have to break the rock to get it to where it would fit into the chute to the skip. Once he had a certain level there, the Hoistman would lower the skip to the certain level and then he'd open up an air door and it would fill the bottom of the cage. There was kind of a bucket system underneath the cage, so he would fill it up under the man cage, and once it was full he would ring the bell and the Hoistman would take off with the ore to the surface. They had these big bins up on the top that once he gets to a certain point, a wheel on the side of the cage would catch and it would dump it into that hopper. Once it was full the truck drivers, at that time it was McFarland and Hullinger who was the main hauler, their trucks would go in underneath those big hoppers. Same system, big air doors, open them up, close the door once it was full, straighten up their loads so they didn't lose rocks and stuff on the road, take off. It was pretty basic, simple, but it worked.

LB: Sounds like it kept the manpower down, that you didn't need a lot of people to do that.

RW: You needed a Hoistman, you needed a Skiptender and a Motorman, and a Toplander. It just took the four people there, from that part of the delivery, from the bottom of the mine to the surface.

LB: Do you remember what year it was when you started as the Toplander?

RW: Yes, I graduated in 1970 and I started the same year.

LB: And what about the year when you got your next job?

RW: I worked at different mines. I left in the early 1970s and went to Oregon and worked in the steel factory for a while. Then they were getting slow on work, so I called back to my old boss here and they rehired me.

LB: At the Columbia again?

RW: Actually it was at the Columbia, yes. I worked there and at other different mines that Atlas had.

LB: At the Columbia you started as a Toplander and then did you become the Skipman?

RW: Skiptender, yes. I was the Skiptender and the Motorman at the Columbia.

LB: How much underground working was there? Do you remember the length or anything?

RW: How long the mine ran?

LB: Yes.

RW: Actually when I went to work for the mine it was an old mine, it was from the 1950s. The shaft was an old wooden framed shaft all the way down. It was framed up with wood all the way to the bottom. It had wood guides on the side to guide the skip. They had these wooden guides that would follow this thing all the way up. That old mine shaft was just kind of rickety, as you went down you just kind of wobbled your way down through that thing. In fact, when you were hoisting, I was Hoistman for a while, but if you ran it too fast at certain times at certain places, in the shaft it would rip out some of the guides and the timbers, and shut the operation down. There were times, sometimes, when the miner would have to climb up. They had a ladder that they could get out with, sort of an escape, if they couldn't fix the damage in a certain time frame, they would have to climb out. Which they really didn't care much for!

LB: How long a climb was it?

RW: It was about 600 feet. You'd climb up the ladder for a ways, then you could get off [at certain places] and rest for a little bit, then go on.

LB: Did you ever have to do that yourself?

RW: I never had to do it myself. But I was running the hoist one time when some timber got torn out, and they were awfully mad at me! They weren't happy with me. After you work a hard 8-hour day underground you really didn't want to spend that last hour of your day climbing straight up for 600 feet.

LB: Which kind of uranium ore came out of this mine? Was it carnotite?

RW: At this mine it was a harder ore, it wasn't like the Morrison ore. It was harder, they called it the Chinle, the formation they were in. It was just a little harder in the Columbia. What was strange about that is the ore across the road at the Rio Algom Mine: the fault line dropped another thousand feet and they were mining the same strata of ore over at Rio Algom. They found that big ore body and Rio Algom mined that ore for over 20-25 years.

LB: Rio Algom had trouble with their mine being wet. Was the Columbia wet?

RW: We had a little water, didn't have a lot of water. We didn't have the water problems that Rio Algom had. Rio Algom, if they shut their pumps off for any amount of time, the mine would immediately start flooding because there was just so much water. The water they had in the Columbia Mine was very minimal. They were able to handle it with sumps. They would drive a little drift and make a hole and they would run the water into that hole, and they'd pump it out.

LB: Where did it go once it was pumped out?

RW: I'm not sure. They took it to the surface [but I don't know] what they did with it. But they were able to get rid of that water.

LB: I'm sure they installed ventilation for this mine.

RW: Oh yes, they had ventilation. They had different ventilation shafts. Sometimes they would break into or use an old mining area. The different mines would kind of connect together, and they would take that mine and use it for an intake air and exhaust it to a different place. Or if they didn't have that, they would have big huge fans, to blow air to certain locations.

LB: What other positions did you hold at the Columbia?

RW: Actually those were the only positions I had at the Columbia. Then I went to work for Atlas again, at a different time.

LB: When would this be?

RW: It was probably 1975, 1976, in that time period. I went to work for them at a mine called the Far West. That's where I learned how to drill and do the blasting.

LB: Tell me about how you learned that.

RW: The first time I went to work they didn't have that program [mine safety] set up, but MSHA<sup>4</sup> set up a program where you had to spend 40 hours of training before you could work underground. At that time I had to do the 40-hour training: first aid, how to handle yourself in a cave-in, if you have an explosion, or if you're caught underground. They had what they called a Self Rescuer you wear on your hip that would change the air out, your carbon dioxide into a breathable chemical, but it was so hot that it would burn your lips. I never did have to use one. We went through this 40-hour safety thing and then you go down underground. Usually when you learn to drill and blast, those kinds of things, they put you with a senior miner that has been doing it. I was lucky enough to get with a couple of guys that taught me how to do it. It was quite an experience.

LB: Can you describe that process to me? The process of drilling.

RW: You usually start with what they call a Jackleg and a hammer. They had different types, names for different hammers and stuff. They probably weighed about 120-125 pounds, the hammer did. The leg was telescopic [and] ran on pneumatics, it forced air to extend this leg as you're drilling so you have a machine that's attached to this hydraulic-pneumatic leg. You have a drill bit and a steel of different lengths that you would use for whatever hole pattern you were drilling, [for] the depth of your round that you're going to drill. These would normally have been six feet deep, 12 ft by 8 ft, 10 foot high, possibly. You take this drilling machine and you put this steel in it and it sits on the hydraulic leg, it sits probably at a 45-degree angle towards the face, between 45 and 90-degree angles towards the rock face that you're drilling. You start the hole, you get ahold of your machine, grab the steel. You have the throttle right here [gesturing] that starts the drill turning and hammering at the same time. So you force your weight in with your shoulder in this thing and you, what they call, collar the hole. You'll have your pattern that you want to drill to blast, and you start drilling and then you back off once you get it started, and give it a little more throttle and the handle on the side would twist the air, so the air on the leg pushes; that's what does the work for you after you get it going. You try to keep it straight. Once you learn how to do it, it is not as easy as it sounds. It is pretty tough. The first couple weeks of that job were really rough. I've seen great big men, big men, that would just--it would take them down. In a day of that it would just tear you up if you don't really know what you're doing. Luckily the guys that taught me how to do it, they kind of teach a few shortcuts and things not to do. You can't fight it. It was a lot of fun, actually, after you get to doing it. We used to do things that would be kind of a competition drilling, you know. We'd usually have a partner and he'd have a machine on one side, and you have a machine [on the other side]. You try to drill your half out before he gets his half drilled out. That was your thing you'd try to achieve during the day.

LB: The holes were about 6 foot deep, then?

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<sup>4</sup> Mine Safety and Health Administration in the US Dept of Labor, since 1978.

RW: Yes, six feet deep and probably about an inch and a half in diameter, two inches in diameter.

LB: Do you remember the pattern?

RW: We had two drill patterns that we used to use down there a lot. What they call the 5-Hole Burn, and another one was called the V-Cut.

LB: That one I'm not familiar with [referring to the V-Cut pattern]. Can you describe that?

RW: The V-cut is when you have the other partner on the other side; it works really well. [In] drilling the burn you drill your holes to start it and you blast your center out first and then everything comes in from that center. But in the V-Cut you set your holes in, like 3 holes, and you come in a V and try to meet at the end [point of V] as close as you can get without touching each other. So when you shoot those first, you shoot that V out first, then you start fanning it out this way [gesturing], then you start coming in to the center. A lot of people didn't like to use those because it would tear up more stuff, like the vent bag and things down the drift, because it shoots the rock farther. You just have to keep your airline and your water line and everything back just a little ways farther when you're using that drill pattern. It's the quickest pattern to do.

LB: Was it sandstone that you were drilling in?

RW: Well, it was sandstone and what they call arkose, a real hard sandstone.

LB: And they called that what?

RW: Arkose.<sup>5</sup> In some of that real high grade that came out of that Columbia there was some really high percentage ore. It ran in real, real hard rock. It took a lot more holes to blast that hard rock out of there.

LB: Were the drillers also the ones to set the charges?

RW: Yes.

LB: Did you learn to do that also?

RW: Yes.

LB: What did you think of that?

RW: It was ok. You just have to be careful. You have certain rules and regulations that you're following. You never veer off of that. You never would carry your primers and powder and

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<sup>5</sup> Arkose is a non-marine sandstone with 25% or more feldspar derived directly from granite with little or no weathering of mineral grains. It is found along the base of the Uncompahgre Uplift in east-central Utah in rocks of the Pennsylvanian period (William Stokes, Geology of Utah, Utah Geological and Mineral Survey, 1986, pg 86).

prell together. You kept them all separated. The primer is the thing that you put inside the stick of dynamite to set the charge. You put the primer in the dynamite and put it in the hole first, then you'd tamp it lightly with the tamping stick, a heavy wooden 1-inch dowel, tamp it in. Once you tamped it then you would take your prell which is the fertilizer, which is the ammonium nitrate and diesel fuel mix, that you would blow it in with a pressure pot like a sandblaster, almost the same principle as the sand blaster. You would stick this hose in the hole and you would just start feeding under high-pressure air, and fill it out to the end of the hole. When I first started they didn't have the electric blasting caps; at the time they had fuses that were all timed, like a 6-minute fuse. At that time you would take all your igniter cord ends and you would start in the middle. Say if you were doing that 5-Hole Burn, you would attach those all close to try to get those to go at the same time if you possibly could, onto that cord because once you lit that thing it was chi-chi-chi. It would start the burn, so that had 6 minutes. You'd move over here and you'd put on a little bit later for the next holes that you wanted to go. And then just keep moving it down that line, crimp them on. But later on probably 5 or 6 years after I started using those [fuses], we started using the electric primers that had millisecond time delays built into the primer. So you just wired those in. At the time you were doing them you shunted them off so they couldn't get an electric charge going to them. Then you tie them off all together and put the two ends, positive and negative, on and then you would go back to your plunger just like you see on TV. Psst [gestures pushing the plunger].

LB: And how far away were you when you pushed that?

RW: You'd probably be, oh, a hundred yards around a corner somewhere into what they would call a cutout. You would sit back there and bring your wire, you'd have a spool of wire that you would roll out and hook onto you to blasting machine. And then hit the switch and BOOM.

LB: Was there some kind of protocol that you used so that somebody didn't come wandering through that area about the time you were ready to push the plunger?

RW: Actually, we could go and make sure there wasn't anybody within a certain area, distance, from where you were getting ready to shoot. And most of the time everybody knew that it was at lunchtime and quitting time that you always shot. So you just didn't go into places at [those] times. There were accidents that happened at different times with people that were at the wrong place at the wrong time. I never did have anything like that happen. We were always very careful.

LB: How long did it take for the dust to clear?

RW: Usually, like I say, you blast and then you go and eat lunch. By the time you finished eating lunch it would be ventilated out, if you were lucky and worked in an area with good ventilation. Some places didn't have real good ventilation; you'd go back and it would be lots of [dust].

LB: How was the airflow inside of the mine controlled? Were you moving the pipe, were you using braddish cloth or anything like that?

RW: There's an art to ventilating mines, especially when they have so many different openings and things. They will take braddish cloth<sup>6</sup> and build bulkheads, what they call a bulkhead. I haven't used hardly any of this terminology for so many years, it's been a long time. They would build a bulkhead in an area that they might want to close off, or build a wooden door area someplace that you would open doors and keep the door closed, open and close so you always kept the air moving in the right direction. They used to use a lot of that stuff that people see now, what we call the great stuff you know, the expanding foam. They used to use a lot of that in the mines, too, to build some of these bulkheads, ventilation stops. That's basically how they would do it. As far as you keeping your air into where you're working, you would just keep moving the vent bag up. You would add another piece of your bag. It's like the stuff that tarps are made of now, but a little heavier quality, rubberized tarp that comes in different diameters. They would attach to this big heavy fan, that would be 75-100 hp electric fans, and it would blow for so long until you reached a certain distance, then it really wouldn't blow. That's when they would have to move the fan forward. They'd bring the electrician down and the electrician disconnects the power and he and the miner would then move the fan forward another, maybe, 100-200 yards or 300 yards, whatever the distance might be. [The miner would] set the fan and hang it up and have it ready, then the electrician would add extra cable and move it up to the fan, hook it up, get it ready to go and turn it on.

LB: Where did the electricity come from? Were you on the power grid or did you have to use a generator?

RW: There were different times and different mines that I worked at that they had generators. The Columbia mine and the other mines that I worked at for Atlas, the Far West, they had power; they worked off the grid. Each mining company would have their own electrician on duty for that time.

LB: Two-twenty volt, 3-phase?

RW: Yes. Two-forty, 3-phase. I can't remember if they were 440, but I think it was all 220, 240 3-phase voltage.

LB: Enough to get your attention if you...

RW: Oh yes! Yes, if you messed around with it would kill you instantly. It is just like anything else, that's the thing about that mining. There are a lot of dangers there, lurking, to get you but if you had the right training and you paid attention you could work fairly safe, without incident.

LB: What was the illumination like underground?

RW: Usually at the station was the only place you had illumination, and the different shops. Each area might have mechanic shop that would be set up where they would take care of all their

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<sup>6</sup> A rubberized heavy cloth, like canvas.

equipment and work on the drilling machines and the diesel equipment. And that area would be illuminated. The rest of the time you had a headlamp on your hat and that's all you had.

LB: Rechargeable battery?

RW: Rechargeable battery. So you really took good care of your light.

LB: Did you ever have it go out on you?

RW: Yes.

LB: What did you do?

RW: Stay still! Wait until somebody comes back. They had the buggy that would show up, or somebody, but you always had a partner. That's why you always kind of worked in teams, you always had a partner. They didn't want you to work alone. Sometimes you would work in different drifts, but you really weren't very far from someone else usually.

LB: So after you blasted and the air had cleared, how was the mucking handled?

RW: We had diesel-powered equipment. We had frontend loaders that were articulated in the middle, they could turn very sharp. They had 911s.

LB: Do you remember the brands?

RW: Eimco, if I remember. Wagner was another old motor we used to have. Sien Brute. Another one was, hmmm, it has been so many years that I can't remember some of them. They had some pretty heavy duty [equipment].

LB: Were they large?

RW: The trucks that I ran at the time were 10-ton Brutes, they called them Sien Brutes. It was a 10-ton truck, the 913 was the bigger one, the 911 was the little one for little tiny areas.

LB: Was it an over-the-top loader?

RW: It was a frontend loader.

LB: So did they come in and scoop it and turn and dump it into the car or did it go up and over the top of the loader and into a car behind it?

RW: When I worked at the Columbia it was pretty an old school mine. The north end of the mine, they used to use the slushers. That's how they would get all the ore into the train. They would take cables and these buckets. Kind of like a giant, heavy-duty hoe about the size of a kitchen table with heavy iron on it. It would have a cable attached to the back of it and one at the

front of it. Where you blasted in the face, when you were slusher mining, you would go in and you would take one hole that you wouldn't load, in the center and on the side of the round that you drilled. You'd back off the dynamite by about a foot in each corner, so when you blasted there would be a hole left in the face. So you go in with a cable, high, and a steel wedge and put that cable into the face and hammer it in tight, and put a pulley right there. Then you would run the cable through the pulley back to the back of the bucket. The guy would be a 100 yards down the drift, maybe crossways because you would go different directions at different times, and you would take the bucket with your controls on the slusher. If I hold this brake it would make it go forward and the other brake might make it go in reverse. So you would hold this brake and it would pull the bucket up over the muck pile, up to the face, and you could feel it when it hit, you could just feel it get tight. So you'd let off, it would drop the bucket. That was a real art in itself, was learning how to get that feel to be able to get that and then drop the bucket into the muck pile. Then you would hit this brake and it would grab the slusher and start making it pull forward. It would take the bucket and it would pull the ore to a certain place, into a pile. You'd get it all out of the way, then the driller he could get back to set up again and drill another round. You could move it from point A to point B so you would take your pins and your cables and stuff and set it in a different location. Maybe move it this way, keep moving it closer to the where the train is. That was the way they did it in the north end of the Columbia mine. In the south end of the Columbia mine they had Young buggies. If you're from Monticello you know what a Young buggy is because Young's Machine supplied all the buggies for the uranium mines around this area. They were 3 and 5-ton buggies, they were like a tricycle with a wheel in the center of those. Then they had their loaders that they would load those [buggies]. They had a loading station that you would open up an area when you drill the face out. They'd open a crosscut for a loading station. It would be a little taller, little wider, so when they come in they'd just drive the buggy and the guy'd take a loader in and he'd back up, load it, guy would take off and another guy would pull in and he'd get loaded and take off. Different places that I worked at had different teams of guys, different contracts. They'd be two guys so you'd load your own truck and you'd take off and dump, then he'd come down and he'd load his truck and take off. That was the thing about it, you tried to be really efficient. You learned different tricks. We worked on a mine-incentive contract. The incentive was for you to produce more; you'd make more money. So you really tried to be efficient and fast.

LB: How long would it take, from the time you started to drill on a new face, for that process of the drilling to the point where you were ready to set the charges?

RW: That all depended on the ground. You know, how hard it was. How many holes you had to drill. There were places that I worked at other different mines where the ground was so soft down by Lake Powell that the ground was so soft you could drill 18 holes and pull the round, even a 10-foot deep round with 18 holes. The mines for Atlas and Union Carbide, I worked for them, that ground was a little harder with different veins of hard rock in it that it took 30 holes to drill out. Then when you go into the hard rock, it was almost like granite; some of the rock was so hard it was like trying to drill granite.

LB: At the Columbia when you were drilling, how long would it take to drill out the face?

RW: Sometimes it was an 8-hour day just to drill one round. In some of those areas, like in the north end where they had that arkos, hard almost like granite rock, you were lucky to get one round drilled out in a day. But in the south end of the mine there was a lot softer ground and you could get two rounds a day. You'd drill it and shoot it at noon and then go back in and be mucking out, move over into another face and drill it out and shoot it about quitting time. Sometimes you could get two rounds a day. I worked for an outfit called Plateau Resources down at Lake Powell and when I started at Ticaboo, I don't know if you know about Ticaboo?

LB: Uhuh.

RW: Well when they were going to start that mine I was working on two inclines that they were driving down through there. That ground was so soft that you could drill 5 rounds a day. You were spending more time just moving your equipment. I would go down there and drill. I would set up, drill the round and the guy would come in and we'd throw all my stuff in the frontend loader bucket, move all my stuff to another heading. I'd start drilling and he would load the round and I would keep drilling and I might get between 5-6 rounds a day drilled.

LB: Back to the Columbia again. You worked on top, you worked at the skip, you worked as a driller.

RW: Actually, I didn't get to drill at the Columbia. I was the Toplander, Motorman, and Skiptender at the Columbia. I moved to the Far West [mine]. It was the main office, actually, for Atlas at that time. Atlas had going at that time, they had the Far West, the Columbia had been shut down by then. They had what they called the Bacardi, the Expectation, they had one that was the Louise that was running, it was another mine in Lisbon Valley<sup>7</sup> that Atlas had going. Then I moved to Oregon for a while, then they started another mine and I can't remember what the name of that one was. They had a number of mines going at that time.

LB: Do you remember when it was that you moved to the Far West?

RW: I believe it was in 1975 or 1976.

LB: You were a driller there? Did you do other jobs there?

RW: Just drilling and mucking.

LB: Then you went to Oregon?

RW: I went to Oregon for a little while then came back.

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<sup>7</sup> Uranium discoveries in the Lisbon Valley-Big Indian area date from 1913 but large scale production did not get underway until the 1940s when the Atomic Energy Commission's buying programs stimulated prospecting and development for the next 20-30 years. A history of the Lisbon Valley uranium industry is provided by William L. Chenoweth, Lisbon Valley, Utah's Premier Uranium Area, A Summary of Exploration and Ore Production, Open File Report 188, Utah Geological and Mineral Survey, 1990.

LB: When you came back, you came back to which mine?

RW: Actually I went back to work at the Far West again. I worked a little while at Far West and then I left there. I quit that mine and went to work for Union Carbide.

LB: And when was that?

RW: Probably 1977, 1978.

LB: What did you do for Union Carbide?

RW: Drilled and blast.

LB: In several of their mines or just one?

RW: Just the one. Actually I just worked at the La Sal Incline for Union Carbide, for three years. Then I left there and went to work for Plateau Resources down at Lake Powell for about a year and a half.

LB: And you did drilling there also?

RW: Yes. After I started drilling that's all I ever wanted to do.

LB: How would you compare the operations at Ticaboo with the Atlas operations?

RW: I really didn't care much, really, for that soft operation. That's why I really didn't stay for very long. They did some things, mining practices, that I didn't really care much for. Those big inclines that they were driving, you usually make a big dip and then cut a little drift in the side, get these sumps that you can get the water out. They just let the water keep running into the main face all the time. So the guys were working in water up to their knees all the time and it was muddy. It was a mess to try to work with. I didn't really care much for that. In the back they had these great big clay, there was so much clay down there, these huge clay nodules that were everywhere. They hadn't been used to doing much roof bolting when I first went down there, and I went to work for them and basically said, "I'm not going to work in here, drill in here, without roof bolts." So I did a lot of bolting when I first went down there. But these big clay nodules, there'd be a great big, giant, nodule there and it would just fall. I just didn't like it; I didn't feel real comfortable with their operation. They had never really gone into production in the time I was there; it was all development work. When I spent my time down there. In fact, I didn't even work in those main drifts; I worked on some lateral exploration drifts, drifts out to the side.

LB: Do you remember the name of those?

RW: The mines? It was the Frank M and the Harry M, is what they called those two mines down there at the time. Like I say, it has been a long, long time.

LB: When did you leave Plateau Resources?

RW: Boy, I'm trying to think. I think it was about 1978 when I went back to work for Union Carbide again.

LB: Back up in Lisbon?

RW: At the La Sal Incline. Went back to work for Union Carbide. I think I worked for Union Carbide three times and Atlas Minerals five times, and Rio Algom one time. Plateau Resources one time.

LB: What was the motive for changing those jobs?

RW: You know, back in those days there were so many mines going that you knew you could go to work tomorrow almost anywhere else. They had MRC, that was another mining company that was down there. But they had so many different mines going that, you know, if something was bothering you, you didn't like somebody else that was working there, you were having trouble with somebody, or you might be having trouble at home and you're really not mentally stable at the time, you might just quit your job. So you would quit your job and take a few days, try to get sorted, and then you would go rustle another job. You would go to work for somebody else. Luckily, if you had a good reputation for being a good miner, they would hire you. That was usually the motivation for leaving.

LB: Were these union mines?

RW: No. The only union mine I worked for was a coal mine in Rock Springs, Wyoming. That was United Mine Workers.

LB: Was all of the ore produced in Lisbon Valley and at the La Sal Incline shipped to the Atlas plant here in Moab?

RW: No, Union Carbide at the time, they sent their ore to their own mill. Union Carbide in Uravan still had their milling operation going. I believe they sent most of theirs there. I think there was a timeframe that they did do a changeover and sent their ore to the Atlas mill.

LB: Were you the Motorman in any of the other mines?

RW: No. I only motormanned that one time at the Columbia.

LB: Did you like that?

RW: Yes, it was a good job. It really was. It was a pretty good job.

LB: Was that an electric train?

RW: Yes, it was a battery-operated train. It had these great big battery cells. I had five 3-ton cars on it. You could haul five 3-ton cars with it. They made sure the track level was pretty flat so you really didn't have any grades, any incline or decline, that you had to deal with. They kept the track level, so once you got the load moving centrifugal force would keep it going.

LB: How long did it take you to get to a work station?

RW: In the old Columbia, everybody would load onto the cage and you'd be at the bottom of the shaft in two minutes. They'd be down in two minutes. Then they would leave there and go to their destinations; it would probably take them another 10 minutes to get to their destinations. They had to walk, usually.

LB: How many shifts did the Columbia run?

RW: At one time it ran three shifts.

LB: Did you commute from Moab?

RW: Yes. Actually that was some of the funner parts of the job, was the carpool and the conversations. You know, the jokes. They were always interesting because you always had four or five guys that had something going on.

LB: What about down at Ticaboo?

RW: Ticaboo was a different situation. It was a camp job. That was a job that you worked 4-10s [four 10-hour days] and then you would take three days off. You'd come back and you'd stay at camp. They had a trailer park there for the married people or anybody that had their own trailer, they had a park there; they were rent-free. Utilities and everything. Then they had a bunkhouse for the single guys. At that time I was single and so I stayed in the bunkhouse. Then they had a cafeteria that you would go in, take your lunch box in the morning, set it in there. They would fill it with lunch and you'd eat your breakfast, and you'd head down to the mine and go into your working place. The shift boss would grab all the lunchboxes and load on his little buggy and he would bring them down to the underground lunchroom. You'd have your lunch down there. They had a lot of nice things going on there, but like I say, I really just didn't like the operation so much. Drilling in water over your knees wasn't any fun.

LB: Did you have any close calls or scary experiences at any of these mines?

RW: Yes, there were a few different times I had some close calls.

LB: Like what?

RW: Cave-ins. And different rock falls at different times. I remember mining in the Far West. My partner and I had stopped for lunch and we decided not to go out and eat outside, and we ate

right there in the drift. So we opened up our lunchboxes and we were sitting back around eating our lunch and the whole face caved in. Right behind us.

LB: The face you'd been working on?

RW: Yes, the one we'd been working, or getting ready to work. But it hadn't been roof bolted or anything at that time; we hadn't started roof bolting. Usually we'd go in and get everything barred down before we got ready to go to work. I don't think we'd been working in there, just getting ready to go to work in there. Ate our lunch before we started. It caved in. Another time I was working in the old Mi Vida Mine, Charlie Steen's old mine, when I was working for a lease miner. I went out for lunch and went back in and that whole area had caved in during lunch break.

LB: When did you work there?

RW: I worked there in, I think, it was 1983 or 1984.

LB: Who was operating it then?

RW: Western Key Enterprises at that time. They were a lease mining company. I wasn't working for a big mining company like Union Carbide or Rio Algom. It was a privately owned company.

LB: Was the operation different because the ore was a different kind of ore?

RW: Well, it had a lot of Morrison in that mine. It had been mined for so many years, there were huge open area, open stopes, huge open stopes. Area where you could look up and couldn't see the top. So high up in there. Massive, big open areas and they were going in and cleaning up, trying to get whatever they could get out of that mine. We had found some other ore in that mine, also. That was the last mine I worked in, actually.

LB: When you're underground like that, how do you know which direction to take your drift?

RW: They have different processes. They call it long holing. You take a machine and you have sections of steel that you had to add onto it, like drilling vertical, like an oil rig would do but on a much smaller scale underground. When you've lost the ore body you take your machine and set up and you'll take different lengths of steel, I think they were like 4-foot lengths of steel, that would screw on the end. You would drill in and add another piece and drill in, then another piece. You would drill a series of holes in a pattern and you would fan out [gestures]. You were working and you didn't make much money doing that. Some guys could make some money doing it, if they were really good drillers. They paid them by the foot, how many feet you drilled through a day doing that.

LB: You'd examine the cuttings?

RW: No. What you'd do after that you would pull out of the hole and get your series of holes. The shift boss would come in and he would have a Geiger counter probe with maybe a 50-foot cable on it. So he would run to the back of all these holes and then he would watch his gauge on his Geiger counter until they got a better reading. If this was starting to get better and better and better over here, he'd paint out the area and say, "I want you to drive a drift that away." So that's how they would follow the ore.

LB: Could you tell when you got into ore? Was there some change in the texture or the color or the smell?

RW: Yes you could.

LB: How?

RW: Most of the time it would start being black. Black would come out of your hole instead of this blue clay or sandy white clay. It would start running darker. Dark black, dark brown. You would note you were starting to get into the ore, especially the Morrison ore.

LB: Did the mining companies that you worked for spend any time talking to you about radon and radiation and that kind of thing?

RW: Oh yes. We used to wear respirators all the time. I don't know how much of the stuff we'd end up ingesting through a day. They had one working level of radon daughter, what they call a working level; for the radiation there was a maximum amount of radiation you were allowed to be exposed [to] in a certain area. They would come in and test the air; we couldn't test it, we didn't have any way of testing the air. That's why we always really tried to keep our ventilation up, it was for our own benefit to make sure we kept the vent bag and fans in good shape. Try to keep as good a air as we could coming in. That was the way you got rid of the radon daughters, to ventilate. As far as ingesting it, or through your skin or eyes, or anything like that, no we didn't have any way of protecting ourselves. It was all old school. You had rubber gloves you wore, you wore a respirator, your safety glasses and your hardhat. That was your protective gear.

LB: Did they talk to you about taking the dust home on your clothes to you family's washing machine?

RW: Well that was something that I never did come across until after I worked in the uranium mill for Rio Algom. Everybody left their "diggers" [clothes worn while working], it stayed there and they were washed on-site. The other mines you went to work in your clean clothes and had you had a change room and you put your clean clothes in your locker or hang them up in the air, and put your work clothes on. But we did take our diggers home, which, like you say, was subjecting our families to some radioactivity, I guess, if it was on your clothes.

LB: What did you do at the Rio Algom mill? Where was that?

RW: The Rio Algom mill was in Lisbon Valley. It was a big operation they had going for quite some time. They drilled two shafts; the Centennial Brothers put one in and Boyles Brothers put the other one in. Those two were connected together and worked for Rio Algom. Their mill was on-site. They never transported any of their ore. They drilled it on site, they had their own crusher, and they milled it right there. Their own vacuum pumps, solution lining, whatever they had to do to extract the yellow cake from the ore.

LB: What job did you have there?

RW: When I went to work for them, I left the basic mining part of it. I was an electrician for Rio Algom. I went to school and worked as an apprentice for an electrical contractor, then went to work for Rio Algom as an electrician in the electrical department. So I worked on the milling equipment, the electric motors basically. Changing motors, just kept that stuff going. Whenever something went bad you had to go in and take care of it.

LB: Were they producing a wet slurry or was it actually yellow cake?

RW: They produced yellow cake on site and barreled it and stored it on site.

LB: Where did they sell it? Do you know?

RW: At one time they stored their ore for I don't know for how many years. Before I even went to work for them. They were still storing it because the price of uranium at that time was fairly high and they had had a contract for supposedly \$7 per pound for so many million pounds of ore. They had that all drilled out at the time, they mined all that and fulfilled that contract. They didn't sell any ore for a long time, waiting for the price to come up and then they sold it, I guess, all at once. At one time they had over two million pounds of yellow cake stored on that piece of property, on site.

LB: In metal barrels?

RW: In metal barrels.

LB: When did you work for them as an electrician?

RW: It was in 1987 and 1988 I think. That time period.

LB: How long did you stay there?

RW: Two years. Actually, they shut the place down. I probably would have stayed longer, but they shut the place down.

LB: Was that your last job in the mining industry?

RW: That was my last job in the mining industry, in 1988-1989 when I left there.

LB: Were there other mines in Utah that you worked in that we haven't talked about?

RW: The only mines I worked in in Utah were the Far West, Columbia, La Sal Incline, Mi Vida, and one they called the Greasy Spoon. It was a mine up on the top of Wray Mesa.

LB: Another uranium mine?

RW: Uhuh. For that same lease miner, Western Key Enterprises.

LB: Again you were drilling?

RW: Yes, drill and blast.

LB: Were the interiors of these mines pretty much the same? I'm thinking of sizes of the adits and the kind of equipment used, and that sort of thing.

RW: Could you repeat that question?

LB: The different mines that you worked in as a driller, were they similar in the size of the openings, the kind of equipment that was used?

RW: They were mostly inclines. Pretty much the same type. Maybe a little different construction; might have been more steel, might of had more wood. They made them big enough to be able to get a 10-ton truck down them and have plenty of room to get in and out. The only shaft mine was the old Columbia and that was just a one-shaft mine. Rio Algom was a shaft mine but I really wasn't mining then; I was an electrician at that time. I spent most of my time in the milling and crushing part; I really didn't work in the mine or doing the electrical for the mine. I spend most of my time in the mill working on the hoist, servicing the hoist and the big generators, pumps, and things like that.

LB: What was your favorite part of mining?

RW: I loved the drilling, I really did. I loved the competition of it, and the incentive contracts were a great thing. You didn't need a union at that time if you had an incentive contract, because the harder you worked the more money you made. So it was fun to be competitive. When I worked for Union Carbide they had 12 different contracts of miners paired together, probably 25 guys and each team had their own contract. Your goal was to be in the top three contracts of making the most money. So it was always fun, the competition. Almost like being in a sporting event, you know. You try to be better and it was a lot of fun doing that. We had some pretty good times, a lot of laughs. To be an underground miner, the danger factor is there and you're always on edge, you're always at the top of your game, always alert to what's going on. There is camaraderie that you get with the other miners. I think soldiers have kind of that same friendship that you get with a lot of different miners. You're close because you're always close to death. You know it can happen at any time. It's a different kind of thing, different kind of feeling. It's

kind of hard to explain. The drilling part really was fun. I enjoyed drilling. I would never be able to do it now because it's a young man's game. It was fun to drill.

LB: Are there any old miners?

RW: I know of one that's just a few years younger than I am, that just basically quit here not too long ago. He was working for that lease miner that I worked for, and he was mining right up until just recently. It takes a toll on the body. When I was mining there were some old miners, old guys that would do it. I don't know how they would do it. Most of the time as you become older in the mine, they have different jobs. The senior guys are the advisor, and he goes and gets your powder and prell for you. Or he'll run the motor. Lot of times the older guy, the senior guy, would be the motor operator. So he wouldn't have to do all that heavy lifting. That's what most of your older men would do. Most of them didn't drill, but there were a few older guys that would do some drilling. That always kind of amazed me. In fact, we had a one-legged man that worked as a driller one time, and he was one of the best drillers I've ever seen. He only had one leg and he would work right along with everybody else.

LB: When you weren't underground mining and you were looking for recreation, did you do things with your mining buddies?

RW: Oh yes. We played golf, we had a softball team at one time. My mining partners that I worked with at Union Carbide, we had a softball team. We played softball. Another time when we were working at the Far West, there's a little story for you if you don't mind.

LB: Go ahead.

RW: We hadn't been playing softball, but Atlas Minerals had a softball team. They were really pretty good and so our mining group decided to challenge them to a softball game one time. The mine superintendent at the time said, "If you guys beat them I'll buy you all the beer you guys can drink." So we played them on a Saturday and they showed up in their fancy uniforms; they looked like New York Yankees. And we're all in our cut-offs and our shorts, and we all show up. We beat them by, like, 14 runs! We'd had like two practices. We would do stuff like that. Play ball, play golf together once in a while. Do stuff like that. Go fishing, go hunting. You know, just basic stuff.

LB: If you had to do it over again, would you go back?

RW: Actually, I probably would. You know, there are dangers there but it wasn't bad work.

LB: Was it lucrative for you?

RW: Yes.

LB: I have no idea what a uranium miner made, do you remember?

RW: At that time you could go to work in the uranium mines, a young man if he worked hard, he could make as much money as most college graduates were making at the time. You'd make much more money, twice, three times the money that a school teacher would make at the time. And being in Moab there were only so many opportunities for good paying jobs at the time. It was a no-brainer for me at that time, to be able to jump in and do it and go for it. I really don't regret it. I have some pretty good memories from it.

LB: Anything else about your mining experiences you'd like to share with us?

RW: Like I say, we had some fun. Another little story. One time we were down working for Union Carbide and my mining partner--he now lives in Idaho; he went to work in logging. We were down there, he and I were in this area that had a lot of ground opened up in it. We were building these things they call a crib. It's like a little log cabin that you set up underground in an area if you have a stope or start to open up a lot around, you build a crib. It will help hold the ground up but more than anything else it will give you a warning when it really starts to take some weight. We were building this crib and it was probably about 10 feet tall. They're made out of 8x8 inch timber and we build this little log cabin. And I was inside this little log cabin, putting these wedges in and tightening it up and putting it together. The shift boss comes down and he and my mining partner decide they're going to play a little trick on me. They said, "We're going to seal you up in there and you can't get out." So I bet them both, you know, twenty bucks to go ahead and do that and I could still get out of there through that 8x8 hole. So I took off all my clothes, all my gear and everything off and started working my way through that 8x8. Looking at me now you'd never know I could fit between two 8x8s, but I did! I pushed myself out of there and got out of that spot. What was strange about it, we went home on a Friday night and that whole thing caved in over the weekend. That area caved in while we were gone. So, like I say, you're always on edge, you know things could happen. But we were lucky enough and observant enough. I'd worked for some old miners that had a lot of experience and they warned me about certain things, certain things to do and not to do. I tried to follow those.

LB: Do you remember the names of any of those older miners?

RW: The oldest man, the guy that ended up getting me the job for Atlas, was a real old coal miner. He came from Kentucky or West Virginia I believe and would work here in the uranium mines part of the time. When the uranium mines would start getting a little down he would go back to coal mining or go into Detroit and work in the auto factory. His name was Frank Zeiler. There was another guy by the name of T-bone Leach. He's the guy that taught me how to drill. A neat guy, a very, very nice man. Lot of the old miners had nicknames, some were Happy Jack, Paycheck. An old guy by the name of Mel Bradshaw we used to call Paycheck. He was the guy who would always have the contracts figured out to the last dime, how much money everybody was making, what they had to do to stay up above the board. So he was called Paycheck. There was a story about Paycheck and another guy, a guy who worked in the north end of that Columbia, just a kid. I still remember he was supposed to be slushing the ore into the cars and one of the miners, the guy that was doing the drilling, came down and caught him taking a nap. So he really got mad at him and he chewed him out. So when he was supposed to go back and help him load the round he loaded the round, but he put the blasting cap on the outside and the

igniter on the other end of the powder and he loaded the whole round. Then they got ready to wire it in and it was backwards, so he was really mad at him. He said, "What'd you do that for Paycheck?" And he said, "He pissed me off!" Just little things like that would kind of go around. In mining they had kind of a thing going on Friday nights. The swing shift crew, the last crew, would be working Friday nights, they got to come home early if they had all their [work done]. You're on a contract anyway and you made so much money and they had their money made, they could come home early. So they'd sit and play poker until it was time to go home, in the lunchroom.

LB: Anything else?

RW: Can't think of anything now.