Nevada Test Site Oral History Project
University of Nevada, Las Vegas

Interview with William (Marv) Swena

October 29, 2004
Las Vegas, Nevada

Interview Conducted By
Joan Leavitt

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Produced by:

The Nevada Test Site Oral History Project
Departments of History and Sociology
University of Nevada, Las Vegas, 89154-5020

Director and Editor
Mary Palevsky

Principal Investigators
Robert Futrell, Dept. of Sociology
Andrew Kirk, Dept. of History

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Joan Leavitt: *OK, would you start by telling me your family background, your father, your mother, a little bit about them, their names?*

Marv Swena: My father came from Golden, Colorado, where his father worked in the mines a little bit. And they had a homestead.

Your grandfather had a homestead in Colorado?

Yes. And he worked in the mines and got the homestead all developed as a ranch. And then the Depression hit and he had to go back in the mines. He lost the ranch and he had to go back in the mines because when he filed bankruptcy and lost it he went to the people that he was in debt to and says, You will all be paid. Don't worry about it. As soon as I can get to it, and he did. He paid them all. He owned the feed mill, the homestead.

Did it take him a lot of years?

Right up till just before he died.

Really. Really. He didn't believe in discharging a debt. It was to be paid.

That was the way I was brought up. If you owed a man five dollars, it was your obligation to pay that five dollars. And if you told a man something and you shook hands on it, it was as good as a signed affidavit because a man's no better than his word. That was the way I was brought up.

And my great-granddad worked in the mines in the early Colorado on claims and made enough money that he was in the first graduating class from the University of Colorado.

My father was kind of the black sheep of the family. He never had a formal education, as did the ones before him and his brothers. I had an uncle that was brew chief for Coors Brewery. I had one that was a master mechanic for Coors Brewery.

Coors was a prominent employer for your family then?

I had an aunt that worked with Coors Brewery for seventy-four years.

Is Coors in Colorado?

In Golden, Colorado. That's where it started. Old Man Coors used to live just through the block from my grandparents.

And my mother's father, his family came in with the Mormons into Salt Lake City.

The pioneers?

Yes.

Back in the 1800s?

Yes. His name was Kirkham [sp] and he died fairly young. He was a rancher there. He was a dairy farmer, and he had beef cattle and a few horses and stuff. And as I **[00:05:00]** remember, going to my grandmother's house, she had chickens and guinea hens and turkeys.

Now where did your grandmother live?

In Francis, Utah.

Oh, OK. Is that where your mother grew up, then?

Yes. Woodland, Utah and Francis, Utah. They had sheep and some cattle and some milk cows. I can still remember them taking the wheat to the old grist mill, having it ground for flour. Spices and salt and pepper and the rest of the spices is about all they went to the store and bought. Yeast. And sometimes they didn't even buy that. Sometimes my grandmother cooked sourdough bread.

It sounds like they were very self-sufficient as far as living off from what they produced.

Yes. They made a good living off what they produced.

Now was this before the Depression or after the Depression?

It was after the Depression when I can remember it because the Depression was over, I think, before I was born in ’38.

And they were always a close-knit family. I mean they would kill their own beef. They killed their own pigs and chickens and turkeys and geese and ducks.

So your mother’s family was into farming and your father’s family was into mining?

Yes. And my dad worked in the Park City [Utah] mines for years and then he got into the timber business. He sold his timber to the mines.

Yes, that makes sense. Of course. Mines use a lot of timber.

Then before I got out of high school when I was a senior in high school they were building what they called a one-ship dam, and I went to work for Utah Construction. I worked night shift—swing shift down at the dam and went to school in the daytime.

Not much sleep?

Not very much sleep. Then I went to the—through my dad the guys at the mine that was in charge knew my dad and when I got out of work I went there and they hired me and broke me in as a miner. And it was warm in there, and dry, mostly.

The mine was?

Yes. There was water running under your feet all the time but we wore rubber boots. But it was warm in there and the temperature never changed. I fell in love with that.

Oh, did you? The fact that it was warm? The fact that it never changed?

Yes. So from then on I left the mines and I went to Green River, Wyoming and worked on a **[00:10:00]** thirty-foot dam under concrete shafts. We sank it and did development work on the bottom of a trona mine for San Francisco Chemical.

Do you know about what year this was?

Nineteen sixty-one. And I went from there back to the mines. Then there was a tunnel job opened up and I went to Steamboat Springs, Colorado and all around in Wyoming. I ended up between Columbine, Colorado and Baggs, Wyoming and we drove a tunnel through a mountain.

Are any of those tunnels on I-70 [Interstate 70] or are those just mining tunnels?

No, this was a water tunnel. I went [into] construction then. I was working construction. It was way off the good highway. It was dirt road all the way. And the fishing and the being—I loved the outdoors and we were up in the mountains, fifteen feet of snow in the winter.

And you were doing construction during this kind of weather?

Yes. We were on a camp job. We went in and stayed for six weeks, then we came out for a week. We had CATs and snowmobiles, or they called them snow CATs then. We stayed right in there and for the six weeks we worked twelve-hour shifts and all the overtime you could stand.

Get the job done and get out of there?

Well, we finished the job that spring. But that was sure beautiful country. Then I went to work on a couple of different tunnels on the Causey Dam [Utah]. We drove the tunnel and run the spillway race through. And that got over so I went and worked on another tunnel job and we drove that one, and I did stay for part of the concrete on that job.

Now were you single during this time?

No, I was married.

You were married? Did your wife travel with you on these jobs or was she located somewhere else?

Well, they were right around Heber [Utah] and I'd go down and live at a boardinghouse for a week and come home on the weekends. And then there was a guy come by—one night when we were stopped in to a place in Echo, Utah and we were having a hamburger and a malt and stuff on the way home from work one weekend—a guy came in there and promised us six **[00:15:00]** months' work if we come down to the [Nevada] test site.

Six months?

No, before that I went to Wheeling, West Virginia and worked on a highway tunnel, twin tunnels, and we came within just a little bit of breaking the world record on a thirty-foot heading. Then I came out here, went down and worked on that job, and that guy came and hired us. We came down here and I plugged in the union hall. They must have been expecting this because I took my union card and I plugged in the union hall and paid my dues and they handed me a clearance to go to the test site.

Was that a Q-clearance?

No, a union clearance. And I went out to the test site and I worked. The first job was Pile Driver in Area 15 in gray granite, and the granite was harder than my head.

In Steamboat Springs we had a red granite, and that's the only granite that I ever came in contact with that was harder than what I was doing out there, harder rock. It was harder to get to break.

Well, I was just looking up Pile Driver, and that was in 1966. So was that the first test you remembered, then, was Pile Driver?

Yes. I worked on it for a couple years before they detonated it.

How long did it take?

Quite a while. That ground was *hard*. I was working back there with my partners that came down here with me, old Charles Johnson and Charles Davidson. When we came up that night I said, `The only way they'll get me off this job is run me off.`

Now why did you say that?

Because the boss came back and—I'd set up a jackleg and I was drilling--and he got mad at me. He said, `You don't drill down here without a chuck tender.`

What's a chuck tender?

That's a guy that helps the miner, the guy that tends chuck, changes steel for him. And I was doing it.

Was that union-type rules, then?

Union and safety. So when I went up that night I said, `The only way they'll get me off this test site is to close it down or run me off.` And I worked there till we developed—in the bottom and poured the concrete. And they brought that superintendent that I'd worked with on construction. Jim Van Tassel was the superintendent then. He was good with concrete and grout. I had worked with him in other jobs and his brother was my uncle so when we got into the concrete Van Tassel made me a shifter.

Now what's a shifter?

That's a foreman over a crew of men. My job was to set up all the concrete pours because I knew just exactly how he wanted it set up.

Now is the concrete for the hole? Is that what that is there?

Yes, they would take it down in the ground, put it in a Moran [sp] car.

A Moran car? What's that?

That's an agitator car, just like a cement truck, only instead of it having a big belly, it's just round and long—

Is that what mixes the cement? Is that what you're saying?

No, it's mixed when it gets there. That's what they transport it with underground. And that particular deal, they would bring it down in a bucket in the shaft and then put it in the Moran car, then haul it back and then pump it in to line the tunnel with.

Now was that a tunnel shot, then, Pile Driver?

Yes. You would go down the shaft and then the tunnel work was in the bottom of it.

[Reading] Pile Driver, tunnel. So did you mainly work on tunnel shots, then?

No, I worked on some of the shafts. I worked on U3v and U5i. There was a couple other shafts that I worked in. I didn't like the shaft because when I was in Green River, Wyoming years before that, when I first started, I fell thirty feet.

Now that was before the test site?

Hurt my back a little bit.

Did it take you a while to recover from that?

About three days. And then I put on a wide leather belt about this wide [indicating size] that I used when I was riding barebacks and Brahma bulls when I was a kid. I just put that belt on and went back to work.

This was when you were a teenager? Where you working the swing shift, is that when you fell?

No. This is when I quit the Park City mines and went up to Green River to work on that shaft.

OK. So you prefer tunnel mining over the shaft mining, then.

Yes. Tunnels or raises. A raise is just like a marketplace out there—this building that was 150 feet of solid rock and you'd drive that tunnel right straight up through till you hit the surface, drive that raise right up through till you hit the surface or till you hit another level in the mines and stuff. I liked that kind of mining but I wasn't too overly enthused about shaft **[00:25:00]**

work. When they shot I went to N Tunnel and worked for a while. I went to E Tunnel first and worked for a while, then I went to N Tunnel and worked, and then they took me back over to [Area] 15 on the reentry and I worked driving back through that rubble and into the cavity that the shot made and drove a tunnel right back over top of ground zero.

Now your work was more before the shot, is that right?

No. I did all phases of it. I was on the mine rescue team.

Now was that to help when there was a problem, an accident of some sort?

That's what we was trained for but you had to go through that, oh, Bureau of Mines and pass the breathing apparatus.

Did you ever have to participate in any rescues?

Nope.

Did you ever have to be rescued, other than that one time when you fell?

Nope.

Wow. Hard head. You were just lucky?

I was lucky. I got hurt a few times but I never had to be rescued. I had an axe fall down out of a raise one time.

Did most people have your kind of luck? I mean were accidents seldom?

No. You get a mashed finger, something like that. But when I got to the test site they were just beginning to push safety real hard. And one of the only things that I didn't have at that time was earplugs. I used to tear up bits of rag and stick them in the ears. And then they got cotton earplugs. And then they got these molded earplugs, and when they came out with them I was one of the first ones to get them. I think someplace I've still got that original pair out there because I

knew that I—and I always wore safety glasses. When the company started furnishing safety glasses I always wore them because I know I just only had two ears and I only had two eyes. You'd be surprised how many people lose their eyes, and I almost lost my hearing.

And I had a reputation out there after we ran that drift in Pile Driver for handling bad ground.

You were able to handle it, is that what you're saying?

Yes. Then it got to the point to where whenever they, at one of the tunnels, hit real bad ground—

What do you mean by bad ground? Hard ground?

No. Bad ground. Ground that will fall in and kill you if you don't catch it.

Oh, OK, so that's unstable?

Yes. And I had a reputation for my timbering ability and for keeping ground caught up—knowing how to **[00:30:00]** run crown bars out over it and one thing and another—and how to handle bad ground and drive the tunnel anyway.

Now is there any way to determine that it's bad ground beforehand? Are there any signs of it or do you just all of a sudden discover that when you're there onsite?

Yes, that's more or less how it's determined. When you drill around, you should have a feel with that machine. You don't take any core out or anything, but when you're drilling around you should be able to feel the way it's drilling, whether your steel plugs up how hard or how soft it is.

Well, can you tell me the difference between a miner and a driller?

Yes, a driller works on drill rigs outside.

And the miner works in the tunnels. Is that the difference?

Yes. And then they have a diamond drill crew and they core this stuff and they know approximately where that bad ground is. But you can walk in and look at a place and an experienced eye can tell you whether you better get it timbered up or whether you—

Do miners drill inside the tunnel?

Yes. And load it with dynamite and blast it.

OK. And drillers don't deal with dynamite, is that right?

No.

So drillers do mostly the hole work, is that right?

Yes.

OK, and then once the hole is drilled and they need rooms kegged out, that's when the miners begin to go in there? And so are you lowered down into these shafts?

Yes, you're lowered down into the shaft and as you go down that drill hole, you set the guides for the cage to ride on. Sometimes they're wooden if it's a big shaft. Sometimes if it's a cased drill hole you've got the air line for one guide and the water line for the other one.

So they pump water and then they pump air down into these tunnels?

The water in the horizontal tunnels, they have to pump in. But the air's done with, what they call, ventilation. They have fans.

How was the temperature in those various tunnels? Did they keep it at a reasonable working temperature or does it get uncomfortable or—?

That depends. Sometimes when you're pouring concrete and that concrete's curing, it gets hot. I don't care what time of the year it is, it's hot. But as a rule, after you get about thirty or forty feet underground, your temperature stays pretty much the same. What makes it cold in some of the tunnels is the amount of air they suck out and the cold air coming in. After you get back in there a while, it's pretty much the same temperature except when that concrete—

Is being poured.

Well, it's after it's poured. It's when it's curing, and it can get awful hot. I guess I'm one of the few guys that really like what they were doing.

Really? Why is it you liked it so much?

[00:35:00] I don't know. One engineer asked me, he says, `How come you like working in that bad ground, and going to Africa hunting, and going to Alaska hunting?` He says, `You must like to live on the edge.`

Do you think you do?

Well, I don't know. My answer was to him, `If you're not living on the edge, you're taking up too damn much space.`

Well, you didn't have a comfort zone did you? You liked a little bit of adventure.

I guess that comes with my love of the outdoors. Now I eat everything that I hunt, but I don't hunt to kill. I kill to have hunted. I don't know, I guess that's just the way I was brought up. And miners are a pretty unique bunch of people, so to speak. When that job's running full, they take care of themselves. If there's a miner that gets hurt, the rest of them get in their billfold and take up a collection and give it to that man so he doesn't lose his home or his car or to help pay his rent.

There's quite a brotherhood there, then?

Yes, and if somebody that they don't like, like one of the experimenters or something, they won't have too much to do with him, but if he gets in trouble underground they're the first ones ready to go get him.

Quite a bit of loyalty, then. How many miners are in a crew that would be working—?

It varies. On day shift underground I've seen it range from five miners on a crew. When the experimenters moves in and you're pouring concrete and you've got everything going, I've seen it go to 250 people underground.

Who are the experimenters? Are those lab people?

Yes.

OK. So sometimes the lab people are in the tunnels checking things out.

Yes, they have to set their experiments and stuff. You know a lot of those experiments are—I wouldn't say the experiment itself is classified on most of them, but the results are. And I'm not an educated-enough man to know what the results were unless they would choose to tell me.

So you just went in and did a job. They said do that tunnel and you did that tunnel and prepared the ground zero and you just did what they wanted done.

Transported their stuff underground for them.

Did you have an opinion about lab people?

Some of them were just like anybody else. Some of them were beautiful people and some of them weren't my favorite people. But it was individuals. It wasn't the group as a group. Some groups had a lot more likeable people in them than the others.

Well, did you see a difference between [Lawrence] Livermore [National Laboratory] or Los Alamos [National Laboratory]? If there were more likeable people in one lab group than another?

Yes. You would see Sandia [National Laboratories] that kind of catered to the miners. And the miners all really liked Sandia.

[00:40:00] *You felt just more respect from them or something?*

Yes, we felt a lot of respect for them. Well, we respected all the experimenters because intellectually they're educated people and they didn't understand what was underground and the dangers of underground. They would get underground where there was no light, no darkness. It was the same all day, and they'd lose track of time. As a walker you had to keep track of that

because some of those people would stay right there and they'd get engrossed on working with their experiments and they would go so long without eating that they would pass out. They really get engrossed and they're really educated people.

Well, I have discovered that they are workaholics, work hard, play hard, you know, very, very task-oriented on a job and excited about it. So you would notice that they would lose track of time and wouldn't eat and probably wouldn't know that it was quitting time?

No. On Friday nights when you'd close it down for the weekend, when I was walking I'd take my three foremen and we would start in ground zero. I'd take my three foremen and three men and we'd start in ground zero, and every alcove or experimenting room or whatever they had, we would walk out and bring everybody with us.

So that's what you mean by being a walker, then.

Well, that walker was—

They keep track of who's in these different alcoves and tunnels and—

He was assistant superintendent. He ran the shift. Then it was his responsibility to see that these people were taken care of. And then the biggest complaint I had, some of them wouldn't sign out when they'd go out.

Are these experimenters or are these miners?

Experimenters.

Why wouldn't they sign out?

Why didn't they eat lunch? [laughter]

They didn't want to quit, is that what you're saying?

I don't know why, but on a Friday night when we closed down and locked the tunnel gates, it was our responsibility to make sure every man was out from underground, and we'd check that logbook where they logged in to go in. When we came back out we checked that logbook.

And if it wasn't signed out you would say there's a man still in there?

If he wasn't with us, then we'd have to go back and see if he was in there.

So did you go in there sometimes and they had just not bothered to sign out?

Sometimes.

Were you able to get that straightened out? I mean that would be frustrating because that would tie up your time trying to keep track of those men.

Well, that was part of your job along with making time cards and filling out the logbook and making sure that everybody had what they wanted to work with. And sometimes it was a little trying. I had a sign on my desk, above my desk, that showed a little cartoon of a guy in a vise and a big old guy giving her a twist.

You felt twisted sometimes one way or the other?

And underneath that sign, that little guy in that vise is saying, "Go ahead and give it another twist, you S.O.B., I work better under pressure anyway."

[00:45:00] *Oh, what a cute little cartoon!. So you liked Sandia. What did you think of Los Alamos?*

Some of their people are beautiful and some of them were [pause] less than desirable, I thought.

Did you feel the same way about Livermore?

[Pause] Some of their people were beautiful and some of them were pretty raunchy. Now that Ballistics Research Laboratories [BRL] they was a fine bunch of guys to get along with. *Real* fine. And that, if I could think of it, LANL [Los Alamos National Laboratory], they had some

real *super* guys and they had some of them that was kind of shady. And you had to know how to handle them. I called Bud Edwards once—he was the division manager—and I said, Bud, I need to talk to you for a while. I said, There's this guy here and I'm having trouble with him and I need to talk to you and get your opinion. Is it me? Is it him? Because I'm going in fits trying to get this job going. And he said, Well, I don't see any reason for you driving all the way from Area 25 up to Area 12, he says, because there's a lot of people that has trouble with that guy.

Oh. Oh. That reputation can follow you, doesn't it?

Yes. And Bud Edwards was a beautiful man, as far as I'm concerned. He could come underground and if you needed chewing out, he would chew you out. And he never raised his voice. He would chew you out something horrible and then he would just turn around and walk off. Well, there you are, when it finally dawns on you exactly what Bud Edwards has said to you, he's gone, you can't argue. He had a gift for that and I admired him for it.

He didn't get into an argument?

Oh, sometimes he did.

Now, Bud Edwards, was he with REECo [Reynolds Electrical and Engineering Company]?

Yes, he was just under Bill Flangas. And I think he had a mining engineer degree because he flat knew what was going on and most of the time he would take the miners' part against the engineers when we was having a little set-to because they would come up with something that they wanted to try and we would tell them it wouldn't work.

And how would they respond?

[00:50:00] Some of the engineers were terrible to get along with.

They didn't want to know that it wouldn't work unless it failed, huh?

Some of the ideas that they came up with, as long as I worked there on the back end of it, we had already tried and knew they wouldn't work.

Interesting tension, then, between those who actually do the work and those who are planning it and designing it and using theory to prepare these tests.

Yes, and you get those engineers out of school and before they have a chance to get any practical experience, if it's not in the book it won't work. If it's in the book it's going to work. And there's circumstances both ways where it will work and it won't work.

Well, you said you were in Pile Driver and this said that there was an accidental release of radioactivity on it. Do you remember that at all, or being aware of that at all?

No, I think that was—

It says Pile Driver.

Unless it happened during the event itself. I know we did hit some pretty hefty radiation when we broke into that cavity. We had about that much [indicating amount] glass that we went through but we plastered it over. And I got some pretty good exposures to radiation. But that RADSAFE [Radiological Safety] outfit and the radiation as far as it was, they was always there but it wasn't always logged the way things happened. They had monitors there that were collecting money for being monitors, and several of them—I know the miners had to show them how to read the Geiger counters, read their instruments. They would either have them on a high setting or a low setting, and the miners would set them where they was supposed to be, and then if they was monitoring a place, they would take a Geiger counter in there and turn it on and it would be registering so much in three days. It'd go way, way down. Well, the reason, they weren't changing the batteries.

So are you saying some of their records wouldn't be accurate, then?

Some of the stuff wasn't even logged.

Now RADSAFE monitors, are you saying they didn't get as much training as maybe they should have?

Well, some of them I think you could have trained them for twenty years and you still wouldn't have had a monitor.

Did you feel you were at risk by their maybe not being as—?

At the time, no, but I look back on it now and yeah, everybody was at risk on account of some of those people. And they had some of those people that didn't appear to be very smart but they could read the instruments and they could figure the isotopes, and if they knew the isotopes on the radiation they could figure everything. For instance, I had one monitor that had to run down to [Area] 12 to get some new instruments. And that man never left underground before he came **[00:55:00]** and told me he was leaving. And you know I appreciated that. He told me about how long he would be back and what he was going after and where he was going. And I think that's the way it should have been run. And he logged everything like it was. He didn't change it a little bit so it would look a little better.

So you liked him. That's the way you thought it should've been done all the time.

Yes. And they had several monitors that were that way. Quite a several. But later on down the line when the monitors had worked their way up and they were up here and they would bring the new monitors in down here [indicating levels], when they brought those guys in new, they were good monitors. I mean if you were working reentry you didn't go any *place* without a monitor. And they stayed right with you till you came out. And it was written in the logbook the way it should have been.

Now did REECo hire the monitors?

I don't know. I suppose they did. Whether they worked for REECo or who they worked for, I never did—I think they did work for REECo, but I didn't get into that because that was none of my business. There were some things out there you can do something about and there were some things up there you can't, and you just have to learn to change the things that you can do something about and live with the things you can't.

That's a fine line, isn't it?

Yes. But I can tell you right now, always document everything. When I had my—they changed to Bechtel [Nevada] when I left up there, I had all my stuff, a lot of it, shredded because it was nobody's business but mine. I prided myself on having a memory and just as quick as I'd have a conversation with one of the experimenters or something, I always documented it and wrote almost word-for-word everything both of us said.

Now did you do that when you worked at the test site? Is that when you began doing that? That documentation?

Yes.

Then you have a record of what was said to you and what wasn't said to you, right?

Right.

Did that come in handy sometimes?

You got that right. One thing, you don't work for that government very long before you learn to C.Y.A. [cover your ass].

OK. I hear you. I understand. Any examples of that that you want to talk about, how it—?

Well, I got into it with an engineer once and he said he was going to call Safety in and we had a meeting with LANL and REECo and Ballistics Research Laboratories, that BRL. They were the ones putting up the money. And that engineer said, `I'll just turn it into Safety and`

have you run off. And I said, Fine. Be my guest. And we went down there to the big meeting and he started shooting off his mouth and I came out with the **[01:00:00]** receipts that the Teamsters had, where they had delivered the stuff, the cost of it, and the cost for the iron workers to do the work, and the type of materials that was used. It was all documented. And he gave them this big cockamamie story, and it was that engineer that I was having trouble with—.

The same one that nobody could get along with?

Yes. And so the company said, What do you have to say for yourself? And I just handed them the papers for everything that had been bought, because that was a classified job, opened the book, showed them everything that was said. I never saw a man get such a chewing-out as that old boy got. And that was one time that he didn't have anything to hide behind or nothing and he was blaming me for running the cost up on the job. And his supervisor asked him where his records were and he said, I don't keep records on that kind of stuff. And they said, It's high time you started. And when you document it, you write the truth down, just like this guy has.

Wow! Did a lot of people you know do that same thing, kind of document a lot?

Yes.

So there's a lot of records out there, then, if they haven't been shredded.

Personal documents have all been shredded because like mine, I wouldn't turn my little black book over to nobody. I carried it in my lunch box back and forth. And I documented just about everything we did and what went wrong and what not. I learned that lesson pretty hard.

Tell me about that.

Well, I had shot a round, two rounds, one on each side of the tunnel, and we had drilled through shotcrete walls, liners in the tunnel, and into the tuff, and we had quite a—it was down pretty close to the alcove and stuff, and it was right across from a transformer space. And we were late

getting the powder, or getting some of the electric wires and whatnot, and we were a half-hour late. And I called my superintendent and told him what had happened. And I guess one thing led to another and by the time I got back they had called Flangas in on it and he had picked up the logbook and looked. I hadn't left an entry. I almost got fired over it. Anyway I told him it would never happen again, and it didn't.

So they had logbooks all over the place?

Yes, you had a daily log on that tunnel you had to fill out on everything you had done: How many **[01:05:00]** men you had worked on the job, the work order numbers, and run the crews and everything, and right at the tail end of it, it was getting almost unbearable to take care of that kind of stuff.

Because the regulations had increased so much?

Yes, by the time you documented everything and made your time cards out and you got your crews lined out and give your shifters the work sheets. And then I told them shifters at the tail end, I says, `You can see things that has to be done but,` I says, `if it's not on this work sheet, don't do it.` In other words, I'm putting the monkey on somebody else's back because it wasn't on the work sheet.

Now who fills out those work sheets?

The job superintendent.

Oh wow. Well, let's see, you came to the test site about 1966? And then when—?

No. I come here in July of 1964.

Nineteen sixty-four. OK. Now when did you retire?

I think it was October or thereabouts in 1993.

Nineteen ninety-three. Pretty much after they stopped testing, then.

Yes. We had some tests ready. As far as I know, they're still sitting there ready.

Yes. Icecap is still sitting there. I think we've got to the—let's see, yes, this is a good stop—

[01:07:18] End Track 2, Disc 1.

[00:00:00] Begin Track 2, Disc 2.

Now you retired, then, let's see, you were fifty-five years old, is that right?

About that.

Was that kind of an early retirement for you or were you ready for that?

You know, I had a heart attack and right after that they put me on that couch in there. Didn't want me to do anything. And I sat there for months. And pretty soon the room started to get a little smaller. Pretty soon it was only two foot square. That was me and the television and the couch in there. And if it hadn't have been for my two little granddaughters—and feeding the wild birds—I'd have went completely nuts.

That's quite a change from your active, on-the-edge life to almost your world stopping, then, huh?

Yes. And I still have trouble facing the fact that I can't do what I did then. It just blows my mind.

Well, do you remember when the Soviet scientists came to the test site?

Yes.

Do you have anything to tell about that at all, how you felt about that or—?

Well, I think Walt Disney summed it up, when Khrushchev come over here and wanted to go through Disneyland, and he said he would close Disneyland's doors if they insisted, that he'd close the gates on Disneyland and never open them again if they made him let Khrushchev go through.

Walt Disney felt that way, huh? I didn't know that. I didn't know he felt that way.

Oh yes. I was out there developing stuff for the United States and we were in the Cold War with Russia and when the Russian scientists came over here, I was madder than a junkyard dog.

Were you? That probably felt like a betrayal of everything you had been defending, didn't it?

Yes. It made me mad. *Real* mad.

Did some of the other miners and drillers that you worked with feel the same way?

Most of them.

Did they express it in any way? Did they—?

No, we learned a long time ago, you'd better keep your mouth shut and let them run it the way they want to. We didn't agree with it.

Did you have to deal with them at all?

A little bit.

Did you? Do you know the names of any of them that you dealt with?

No. I had as little as possible to do with them.

Now I understand some of the drillers painted the drill rigs red, white, and blue.

Could've been.

I would love to know who knows more about that story.

I know when we were cleaning up T Tunnel yard, they had an old white diesel with a trailer on it and we were hauling all the stuff from T Tunnel yard into salvage, and to this day I don't know **[00:05:00]** who done it but somebody wrote—had a black Teamster and he was quite a character. He might've done it himself. I don't know. He took a can of red paint and wrote "Sanford and Son" on the side of the truck. And when I left the truck was sitting down in the yard going up for sale and it still had "Sanford and Son" in red paint on the side of it.

Oh, they could be a little bit rednecks there, couldn't they? Make their protests known in their own way.

I got a kick out of that. We were stopped there and they had some protesters out there. And we had a woman security guard. And we were stopped at the gate. We were going in and they were trying to get in and I heard that one gal talking to that security guard and she says, You know, my father worked out there and my brother worked out there and, she said, I'm twenty-nine years old and I've never had a child yet. And that woman security guard stuck her head out the window and she says, Honey, you should be home in bed with your husband instead of out here protesting.

Cause and effect here, huh? You're blaming the wrong cause.

She was quite a security guard. She didn't take no guff from *any*one. She went *right* by the rules and if you didn't go by the rules she let you know it. And I liked that.

Now did you have to commute out there every day, is that what you did?

Most of the time, yes.

To the test site so–did you have a bus that took you out there or did you commute in your own car or—?

Before they had the buses we carpooled, and then it got to the point to where some guys was buying vans, putting extra seats in them, and they'd drive you back and forth and we'd pay them to ride out. And then we was on strike and we wanted subsistence, so they furnished us buses.

That commuting made for a long day, then, didn't it?

Yes.

Were you already working twelve-hour days?

No, we was working five eights, five eight-hour days, but to get an eight-hour day, to go to work at eight o'clock you'd have to catch the bus at six.

And you'd go and you'd work till four o'clock and you'd go shower and change into your street clothes and get in the bus, and by the time you got home it was six.

So it was a twelve-hour day, then. Six to six.

And sometimes longer. And then our bus driver would get mad and he'd slow way down. And some of those buses, when we first started, they give it to Westside Charter, and they didn't have any air conditioners.

Oh, that would be miserable.

The air conditioner would go out and they'd expect us to ride that bus. And Bill Flangas come to me and he says one time, he says, `You are in charge out there. You should make your crew get on that bus and go to work.` I said, `I'm in charge out here. Downtown, if I try to make somebody get on that bus, they might knock hell out of me.`

[00:10:00] *Yes, that's their decision. That's not your work site. The bus is not your work site. So what did Bill Flangas do?*

Well, he just looked down his nose. We were working at N Tunnel at the time and it just so happened that I had to work and I stayed in camp, and those guys wouldn't ride the bus. And were on what they call a "button-up" in N Tunnel, and they finished a pour on graveyard, concrete placement or grout placement, one or the other. And no day shift showed up. So Joe LaComb, he answered to Washington only, and not very many people there.

Now what's "Washington only"?

He answered to Washington only.

Oh, OK, to Washington, D.C., people in Washington, D.C. OK, got you.

Yes, he was DoD [Department of Defense]. He was way up. I think he had—

Joe LaComb, is that what you said?

Yes, I think he had a GS [government service] rating of about a four-star general. He asked me what was going on. I told him and he says, Well, you get on that telephone and you call your crew and you tell them in two hours at the bus stop there'll be an LTR [Las Vegas-Tonopah-Reno Stage Lines] bus to pick them up. So I did just exactly what he told me to. And he turned around to Bill Flangas and he says, I want LTR buses for the miners.

Well, you can't get your work done if they won't ride the bus.

No. Joe was always—he liked the miners real well. He liked the pipe fitters pretty good. Liked a lot of them real well, and anybody that put out for him, and he realized they was putting out for him. He'd go to bat for you, and believe me, he was kind of like E.F. Hutton: when he spoke, people listened.

Well, it's good to have a man like that on your side, especially for things like air conditioning on a bus. Unless you're willing to ride in that bus and see what the conditions are, you know, you're not even going to care, but you sit in that bus yourself—

That's right. We got into a lot of stuff like that. And another thing that put me down so bad on thes engineers was some of the things that we'd done out there, and had been doing for years, like making a crossover in the railroad. Some of the new engineers come in, one of them in particular, and he'd see this and then he'd draw it up on paper and turn it in as a suggestion, and he was collecting fifteen hundred, two thousand dollars, and it wasn't his idea. All he'd done was just drew up what the miners had been doing, and the guys that done it, come up with the idea and done the first one, never did get credit for it. And that's one thing that I could not bring **[00:15:00]** myself to do, is take credit for something that somebody else on my crew come up with an idea and it worked, I made damn sure that *that* was the person that was recognized for it.

That got the credit. Were there any ideas that you submitted that they implemented?

There was some of them that I did. I built the first crossover on the railroad, and that engineer drew it up and turned it in and got twenty-five hundred dollars for it. But I just didn't say a word to him. When they had the safety meeting and they presented him with it, the only thing I said was I raised up in my chair and I said, Well, I hope you're proud of it because you didn't earn it.

That would kind of stick in your craw, wouldn't it?

Yes, but I had a lot of things out there that was pretty hard to swallow but I just had to take them because they'd want you to do something, and especially a few years back, one of Bill Flangas's great sayings was "You'll either do it or your replacement will."

You can be replaced. Did you deal a lot with him?

I had as little to do with him as I could possibly get by with.

Now he was a miner, is that what he was, a mining engineer?

He was Division Manager. He was over all the mining. And they had a guy out there by the name of Frank Solaegui.

Oh, I've heard about him. I've heard about him.

He was more qualified for the job than Flangas was. He was over the drillers.

What'd you think of Frank?

I think Frank is a prince of a man.

You liked him. Yes, because he was one of those who went over to the Soviet Union [USSR]. Is he still around?

Yes. He's not getting around very good. But he was a pretty fine gentleman. Still is. I like him a lot.

Yes, he was one of those who went over to the test site over in the Soviet Union. He was with the first group. So I've heard about his name. Now another one I've heard about is Guy Allen, and he was also a Mormon, and I haven't been able to find him.

Frank Solaegui generally comes to our retirement breakfasts over there.

Does he? At DOE [Department of Energy]?

No.

The REECo ones?

No. The miners started it when they retired.

Really? Oh, well where is that? Maybe I should get myself invited to that one.

Well, you're invited.

Well, when is it?

It's the second Wednesday of each month, and we get there about 8:30 in the morning over on the corner of [Charleston] and Decatur, in that *Original Pancake House*. And we all chip in ten, twelve dollars apiece and have breakfast, and we got a guy that takes care of the money and takes care of the waitress, and we've had some *beautiful* waitresses over there. I mean the girls, that last one we had before we got this one, she spoiled every one of us. **[00:20:00]** *Oh, that's nice. That's nice.*

She'd bring us our coffee and at times there was as high as forty-five, fifty miners there, and experimenters and what not, you know, and she didn't want another waitress in there taking the orders. She didn't want no other waitress in there delivering the orders. They'd bring them in, put them on a tray, and she served every one of them. She said the guys knew what they could eat and what they couldn't eat, what they ordered, and she says, `Most of them don't even need a menu.`

They know what they like.

Well, or what their doctor will allow them to have, you know.

Yes, there's that, too. Well, that's coming up, second Wednesday, that's not too far. Well, if you don't mind, I would love to show up.

Well, my brother's got me an elk tag in Utah and I don't know just which day in November that he wants to go try and get one. Got me a cow tag.

Oh wow. So you want to go with him, then.

Yes, he got me the tag.

Good for him.

It's on private ground, and the state gives them so many tags for crop damage, and then they sell them, and he had a guy say, `I'll give you two cow tags.` So he got the two cow tags, so we're going to go see if we can get a cow.

Oh, well good luck to you. I hope you do. That's neat.

That was one of the biggest peeves that I had about some of those engineers. They would take credit where credit wasn't due. And the guy that come up with the idea got a snarly look. And it just rubbed me the wrong way. And it don't matter if a man just walks on a job just right his first day on the job, listen to what that man's got to say. Sometimes he comes up with a pretty good idea. And I used a lot of ideas from the different miners out there when I was walking and shifting and stuff, but I always made sure that the guy that made the suggestion got the credit for it. Because my way of thinking, that's when you're a complete failure, is when you start stealing somebody else's ideas and blaming somebody else for your faults. That makes you a complete failure.

Well, that certainly creates morale problems. That doesn't demonstrate leadership ability, doesn't pull a team together, you know, there's some real problems with that.

Now let me ask you about working at the test site versus *how public perception changed through the years. Did you kind of see a change?*

Oh yes. Didn't you?

I was gone for twenty years.

Yes, I've seen the time when if you worked at the test site you could have about anything in this town you wanted.

Yes, and see, when I left in 1970 there was not a negative feeling towards the test site. Now when I came back in 1992 it had changed. I think it might've been Yucca Mountain, you know, I'm not sure what it was but it had changed.

It had changed before then.

It had changed in those twenty years and I didn't know why. Do you know when it did?

[00:25:00] When they started demonstrating to stop nuclear testing before they had ever won the Cold War.

Now would that be Amchitka because Amchitka seemed to be where Greenpeace began.

Amchitka was in Alaska.

Yes. Did you go there?

No. But I know people—Frank Solaegui went. Uncle went.

Uncle?

I call him Uncle all the time. Hank Peluaga.

Oh, oh, oh, is he the Native America? Is that who that is?

No, he's Basque.

OK. Is he still around?

Yes, he's on oxygen now. He comes to the breakfasts pretty regular.

Oh boy, I need to go to that breakfast and get some of these, because I talked to Nick Aquilina and he was trying to remember anybody who could tell me about Amchitka, you know, who had experienced Amchitka.

Well, Charlie McKinley comes to our breakfast every once in a while, and him and Hank were both walking there.

I understand Amchitka was, they had to overcome a lot of incredible obstacles, you know, that it was an engineering miracle almost.

I have no idea. I didn't go.

Yes. OK, well you've given me a couple of names here, then. That's great!

Oh, there's a lot of guys. They've got mucking machine operators that goes to that retirement breakfast. They've got experimenters that goes to it. They got laborers and miners. Holmes and Narver used to be the inspectors out there. They've got some of those guys.

Does Bill Flangas go to these breakfasts?

Once in a while when Frank Solaegui will leave him alone. Frank don't cut Flangas any slack. Flangas is one of those guys that just almost demands respect, and that's not the way to get respect, is to demand it. You *earn* respect. That's my way of looking at it.

And it's hard to respect a man when he tries to run the job with intimidation.

You felt he did that a lot, then?

A great lot. Bud Edwards, he lives in Utah someplace, I think. He lived in Caliente for a long time.

Is he still around? Bud Edwards is still around?

He's in Utah someplace.

OK. Sometimes I have a hard time finding people. I keep looking. I mean finding their phone numbers, not the names themselves, you know, I often get good names but sometimes their phone numbers and where they are is another challenge.

And Fred Widmier, he was walking while I was out at the test site for years and years and years, he comes to those breakfasts. Some of the line men that are retired, they come to the **[00:30:00]** breakfasts.

Well, I'm looking forward to going there, then. Well, let's get back to this public perception. We kind of got a little bit into Amchitka, but the protesters. So you began to see the public perception change after, let's see—

After they started protesting out to the test site. That's when the perception—and when people started moving in from California and different places. You know when I come down there in 1964 there was, what, thirty-five thousand people in the greater Las Vegas area? And as more people moved in, the more turmoil there was over it. The miners always had a reputation as being hell raisers in town, but if there was any damage done they'd pay for it. Pay for what they'd done. And then they—[pause]

Now the test site was a major employer, wasn't it?

Yes, for years.

For a lot of industry for the community.

Yes. For every job on the test site there was probably six or eight people working in town for, oh, bolts and fasteners and iron workers and hardware and people that dealt in tools and stuff like that.

So did you start to feel sometimes people outside of the test site, you know, looked upon you negatively for working out there?

Yes, I did. I've heard them drive by and say, Why don't you get you a real job? But the trouble we have with the people, the guys that come from town *out* there and worked, they found out it *was* a real job, that you just didn't stand around. They had the protesters come on the test site, and they came in from the back way, and they come down over the hill to P Tunnel. And I saw them walking through the yard. And they didn't have any badges on them. So I went out and I says, I'm going out and talk to them. Call Wackenhut. And they caught them right there and we got them right there in P Tunnel yard.

Do you remember which shot this was for or when this was, what year this was? Don't work too hard at it. The dates aren't really that important.

I'm trying to remember the shot we was on. But we was on a button-up mode and all, you know, getting ready there.

Yes, because I know Kearsarge, they had some who—with the Soviets, that there were some who walked across the Nellis flats or something like that.

They came in through the back way, too, from around on the back road that goes across, oh, over to Tonopah, they'd come in that way, too. But they asked me how I'd handle them and I said, I'd go up to Utah and I'd get me about four of them good cow dogs and, I said, when I caught them on the test site, when they'd snuck on the test site, I'd just **[00:35:00]** take everything away from them, all their water and provisions and their shoes, and I'd set them cow dogs on them.

You had no sympathy for what they were trying to protest, did you?

Well, no. It made me mad for the simple reason that they were, as far as I'm concerned, were messing with national security.

Did you feel that sense of Cold War, the Soviet Union versus *the U.S., did you have a real strong sense of that competition there?*

Yes, and I talked to different people about it. I told them, when they said they was going to stop experimenting, I said, Now you've got China over there and, I said, I don't know where these politicians are getting their information, but if they ever get in war with China they'll never win a war with China using conventional weapons.

Yes, China would out-populate them, you know, they would—

Wear their machine guns out on them.

Yes. So you felt that deterrence, the mission of the test site, as deterring nuclear war, you felt that sense of—

Yes, it was. We was so far enough advanced, nobody'd mess with us. And Russia was trying to catch up but they, well, they went broke trying to.

They did.

And Russia took the fancy tanks that they had and they went in and tried to, oh, that nationality, the Genghis Khan, what were they? What was he?

Mongolia?

Mongolia. They went in and was going to take Mongolia, and those Mongolians kicked their pants on horseback even with their big, modern tanks and stuff because they'd ride in and pick off a couple and ride out on their horses.

Now you grew up, then, with the understanding that the Soviet Union was the enemy, then. You were comfortable with that focus, then, right?

Yes, I was. Still am. I *still* don't trust them. I'll probably go to my grave not trusting them.

Yes. Well, that's something that the younger generation is clueless about.

Yes, I've heard them even say that they doubted that—what Hitler did in Germany didn't happen. And I was a great fan of George Patton's.

Kick them. Let's end this war right now.

Give me five minutes—how'd he say that? "Give me five minutes in there and I'll have them sonofabitching Russians in a war and make it look like their fault."

It was their fault. He is quoted as having said that.

[00:40:00] Yes, I've read a lot of books and watched all the movies and stuff on George Patton. I even went to DoD and got one of his movies for a Safety meeting. And he stood up in front of them troops and pardon my French but he said, "I know what you guys are thinking. You're not going to do that for that son of a bitch." He says, "But I'm going to tell you guys something right now. Every son of a bitch is a son of a bitch to some son of a bitch."

Well, I liked it when he said, I don't want you to die for your country. I want you to make the other guy die for his country.

[Swena quoting Patton] Wars are not won by dying for your country. Wars are won by making that other son of a bitch die for his country.

Yes, that is such a classic comment there. Well, I really think that the test site has to be understood from the Cold War. You know you can't just look at tests without understanding who the perceived enemy was, and some of that has been lost as this younger generation is coming up. That's why you're saying it, you're expressing it, is good, is really good.

It wasn't just nuclear weapons that was developed out there. These freeze-dried—

Processing food?

Yes.

Really? I didn't know that was—

They come up with that idea out there.

Yes. I didn't know that. Well, I knew a lot of technology came out of defense, between the computers and satellites and radar, you know, there are just all kinds of things that came out of defense.

Where would you have been without nonstick pans, Teflon-covered pans? That came from out there. Where would you have been without the laser beam, was developed out there? Your laser operations on eyes and different things? That's why they called it a test site. Really in my way of thinking, there was a *lot* of stuff come off that test site.

Well, there was a lot of rocket development that helped with our rocket program, you know, our astronaut program. There are *a lot of things. There are a lot of things.*

They developed that solid fuel that they put a man on the moon with.

Yes. Well, I noticed they had construction that was tested, you know, to improve construction standards. They had a safety deposit box that a bank had wanted tested so that they could improve standards for safety vaults. There really was more. There was much, much more out there then than just the nuclear explosions. There was testing with animals to see how much, you know, with the radiation.

Yes, I've seen those cows with the windows in their sides.

Did you? You saw them, huh?

Yes. And a guy in our ward [congregation of LDS], Brother [Lafayette] Dana, run the milk cows out there.

Did he? How do you think their milk was? You think it was OK milk? Would you drink it?

I don't know. I never had the opportunity. I know when I was a young man and they first started with the atmospheric shots, we had to dump our milk in the ditch for I think two weeks. And

then they say that that radiation didn't get—but we still had to dump our milk out. And for an old country boy, that's—

That's a waste.

Well, you couldn't feed it to the pigs, you couldn't feed it to the calves. We had to go buy dry **[00:45:00]** mix to feed the calves. I don't know.

Now was that as a Downwinder? Was that your experience as a Downwinder? This milk that had to get dumped, is that when you were growing up?

Yes, when I was in Utah.

OK, when you were in Utah and they were doing atmospheric tests and you got the word that you couldn't sell that milk, is that what I'm hearing you say?

Yes, and we couldn't feed it to the calves and we couldn't feed it to the pigs and we couldn't feed it to the chickens. It was to be dumped out.

For two weeks.

For two weeks we dumped it out on the ground.

Did anybody reimburse you for that or was that just a loss?

No. Nobody reimbursed us for anything.

Do you think they should have?

I think they should've, but they didn't do it. And what's the old cliché? No sense of crying about spilled milk.

Well, that was literally spilled milk, wasn't it? Yes.

I literally looked forward to going to work out there every day because as a miner and as a foreman I *loved* to drive tunnel. And the *faster* I could drive it and the more efficient and the safer, it just tickled me to death.

That's neat that you loved your work like that. That's wonderful.

There are very few men in this world can say that they spent a lifetime working where they enjoyed what they were doing.

That's for sure. That's really special that you have that. It really is.

Made a good living for my family, and I just enjoyed it.

Now let me ask you about your Mormonness out there. Was that a conflict with some of the other culture or did you just—?

We did josh back and forth. They called us carrot snappers and plumb bobs and—

Carrot snappers? What's a carrot snapper?

Somebody that eats carrots. I think that's the state vegetable, isn't it, for Utah?

I don't know. I knew potatoes was the vegetable for—

And then plumb bob, you know, the carrot on the end of the string to hold things plumb?

OK. So was that just referring to you as being from Utah?

Yes, and they called us the Class of '57 and the Class of '56, and then when a new bunch of guys would come down to mine, this is the class of that year, you know.

Were there a lot of other Mormons who worked out there?

A lot of other Mormons that worked out there? Yes.

Yes? Were there really?

Yes, I said, `This is where the money is.` And I says, Even if Flangas don't like it, or anybody else don't like it. The Mormons took this test site and never fired a shot because at one time most of the supervision out there was miners from Park City district and from Utah.

Really? Really? So they were very much a part of the test site, then.

Yes. And they did stand out like a sore thumb.

Tell me about that.

Them country boys do more work accidentally than most of them guys does on purpose.

Do you think it's because they're not drinking and they're just more focused?

No, some of them drank. It's just that that's the way they was raised. You give eight hours' pay for eight hours' work. You get eight hours' pay for eight hours' work, and they would work.

[00:50:00] *Now there were also people with farm backgrounds from other parts of the country like Kansas and Nebraska who also worked at the test site. Did you find that that work ethic was what made the best workers out there?*

Yes. That work ethic, especially in the Mining Division, when them guys come down from Utah they'd say, `Well, he's a pretty good hand.` Or, `He's a damn good hand.` And I said, `He'd better be or I'll send him back to Utah dragging leg.`

You maintain our [Mormon] reputation around here.

Yes, well, we did have a worldwide reputation.

Did you? For being good workers?

For being good miners.

Good miners.

Yes. Palisade, Colorado, there was a big piece in the paper that B.A. Peters, years ago, conquered the moving mountain with the Park City miners, when they brought the water in for the peach crops and stuff.

So the Park City miners had a very good reputation, is that what you're saying?

Yes. Yes, and most of the guys—well, the coal miners, they was mining coal. We didn't consider that hard rock. We called them cheese miners.

Now there were miners that were Catholic and there were miners that were Mormon, is that right?

Yes. There were miners that were Jehovah Witness, there were miners that were Seventh Day Adventist, there were miners that were Southern Baptist, and there were miners all different, but one thing on the job they never took serious and never discussed—very little—was politics and religion.

Just didn't get into arguments about that.

Nope. I know one time one of the mucker operators, he was from Oklahoma, he says, I don't know about them Democrats. He says, They're always sticking up and what not for the different groups and stuff. And I said, Well, the way I look at it, if some of you Republicans would straighten your ways out, they wouldn't have anything to stick up for. And he got quite a bang out of that. But we got along good as a whole. I think in the years I was out there I've only seen [pause] two guys got hit with their fists, with somebody else's fists.

Only two fights. That's pretty good.

And most of the time the guy that agitated the fight asked for it. I remember once an old man hit a younger Mexican guy in the mouth and knocked him down. That was right on the job. And they asked me what happened and I said, I don't know. I never saw it. You'll have **[00:55:00]** to ask those two guys what happened. Because the Mexican guy had it coming. And another time they waited till they got outside the gate. They had an argument and one guy was supposed to be a karate champion and the other guy, he was from Utah, he was just an old country boy miner, you know, and he says, Before we start fighting, I want you to know that I'm a karate expert, and he let out one of them karate screams and he never got through screaming before he got knocked colder than a wedge.

Well, it just goes to show that the louder you holler doesn't mean you pack a punch.

And he never threw a punch. When he let out that scream, that guy just punched him on the chin right there and knocked him colder than a cucumber. And they loaded him back in the van and he got in his van and down the road we come.

There was guys out there that had some reputations for being mean in town.

Would they cause trouble on the job?

No.

At least they knew where not to make trouble, then, huh?

Yes, that's one thing about miners. When you hit that job, there is no [pause] reason—leave your differences outside because everybody has to depend on everybody underground.

And then out there another thing that kind of ticked me off out there, they'd give you a crew of men and you'd get them lined out and organized and working together and you'd get to where you were driving a third more heading than the other shifts put together, and then they'd split you all up. And the reason for that was when you had a crew doing that, they was enjoying their work and everybody knew something about where somebody else was and knew what they were doing.

They were a real team.

Yes, that's the whole thing. If you're going to run a tunnel, you've got to have a team. You just can't have a bunch of bodies in there.

Now do you think mining is particularly unique for the intensity of the bonding? It sounds like as a team, you face more danger. Now it seems like drillers individually, you know, they face danger because of the large amounts of pressure weights that they're dealing with, but it sounds like as a team, miners face tremendous danger together.

Yes, everybody knows—that everybody else—that it's a dangerous occupation, and for years and years and years they used to say they killed a man for every mile of tunnel that was ever drove. And now it has to be—to take the life of a guy at—there was a couple or three guys got killed out there while I was out there. One guy I know particularly it was his own damn fault because he wouldn't listen to nobody and he was going to be the greatest thing since sliced bread. Instead of just *being* the greatest thing since slice bread and not taking any chances, he had to take *all* the chances. And there was really no sense in it. And if there was a big slab **[01:00:00]** hanging up there, he'd go ahead and set his steel and try to catch it instead of drilling the hole in and shooting it down or getting a bore and boring it down. I knew him for fifteen years out there and he took those kind of chances all the time. And you couldn't talk him out of it. And there's places where you stand when you're boring down and where you don't stand. And if you pay attention to the older miners and how they do things, you won't have any trouble.

Well, it sounds like you've really accomplished something by living as long as you have, for a miner, then.

Yes, I had a few accidents. I mashed a finger, mashed that thumb with a double jack. The ground was taking weight and I was trying to put some bolts in what they call the scuttles in the shaft. It wouldn't go. I held it up there and took a single jack—well, it was a double jack with the handle cut off, and we was in the shaft, and I had a thong around the hole drilled in the handle and the leather thong around my wrist so if it got out of my hands it wasn't going to fall down. Because we had an old saying out there: "I don't care what you drop in the bottom, as long as you're ahold of it when it hits."

Now you don't drop things. That's a real strong message. You do not drop things, then, huh?

That's right. You don't drop things off that jumbo, you don't drop things when you're working in a shaft. You can take a rock that big [indicating size] and drop it down a shaft or a nut that big.

You could kill somebody.

A nut that big [indicating size] would go right through a hard hat, falling a long ways. You can drop anything you want, but you be ahold of it when it hits the ground. And that's the law we worked with. That's why the thong was on the double jack, sawed-off double jack, because boy when I hit that finger it's just a dull thud, but when I got back over in the cage, that double jack was still tied to that wrist.

Yes, well, you've certainly opened my eyes about the realities of mining and the teamwork involved, and you know this has really, really been interesting.

Just to kind of start to wind down and summarize a little bit, what would you say is the best time of your life?

All of it.

You liked it all.

Yes, I would say in my younger years I prided myself I didn't—when I first come here to this test site, I prided myself on being the fastest man on a jumbo and the fastest man drilling with a sinking hammer and the fastest man on a liner.

You really gave your best, didn't you?

You bet. And anybody that goes in a heading better give their best. I don't like to come in second in *nothing*.

Well, no wonder that gives you such a sense of satisfaction. You know if you always give your best, then you've had good experiences.

[01:05:00] My old granddad told me, he said—I was only about this tall [indicating height], maybe seven, eight years old, and he'd come from Denver to Kamas [Utah] when I was in the second grade, and he said, Son, he says, pick out whatever you want to be and you be the best at it. And he says, You won't have no trouble finding a job.

He was right, wasn't he?

Yes, he was right.

So you found what you loved to do and you worked at being the very, very best at it.

That's right, and years and years and years they'd come in from California and they'd come in from back East and they'd hit them jumbos, mess with the controls on them and think they was going to drill faster than I could—

And they couldn't do it.

And my brother in Utah now works for the state road—he worked on that central Utah project—and he says, Them inspectors were Bureau of Reclamation. He says, All them guys knows you.

Oh really? Your reputation followed you.

And he said, All of them miners that comes in here, don't matter where they come from, he says, they look at me and tell me that if I wanted to really become a crackerjack miner, to go down and get to the point where he could beat his brother off the machine.

Now a jumbo, is that a mining tool, then?

Yes, it goes down the track or it's on rubber tires and it's got anywhere from, oh—ten to fourteen machines on it, or from one machine to fourteen machines on it.

Oh wow. Now is that what drills into the rock?

That's what you drill the holes with to load the powder in.

Oh, OK. So they'd be long—

Generally they drill them eight foot deep. And I could drill twenty-four eight-foot holes in eighteen minutes.

Wow! And you were also very good at bad rock.

Yes, I worked for a while with my dad underground, for three or four months. Matter of fact, he learned me how to run a jackleg and he learned me how to timber. And what they done, they sent me in, my dad and Lyman Watkins [sp] and they set me on a powder box, and Dad went in and drilled around. It was a gob ground what they called, where they'd go out into the waist you know, to fill up the stoke where they'd taken the ore out of, to hold it. And they explained to me where they was drilling and why and how important it was to drill a straight hole, how important it was where the hole bottomed out. And I watched my dad drill half-a-dozen rounds, and I watched Lyman Watkins drill a half-a-dozen rounds, and then they give me a machine and told me to go ahead and drill a round. So I worked.

[01:10:00] *Well, it must give you connection to your father and your grandfather and your great-grandfather, that mining connection, all those years.*

Yes. When I had a problem, I'd talk it over with one of them, you know. I never did know my great-grandfather.

So you had four generations of miners in your family, is that right?

Yes, I've got a son that works out at the test site right now.

You have five generations. Five generations. Got to get really good at what you do if you spend that many generations doing it, then, huh?

If you had a problem and you can't figure it out, you can come home and ask, call one of them. I'd call my granddad or my dad on the telephone.

Did they help you out a couple of times, then, with some solutions?

With advice, yes.

Well, that's nice.

And when I was bossing I'd call my dad, and he was quite a character. [Pause] I told him I was having problems and I explained to him the problems. I says, I just can't put my finger on it. Well, he says, You go think about it, and if you can't come up with the answer, include yourself in that problem. There may lie the answer.

Good advice. Something I'm not seeing, you know, something I'm not doing right.

He says, And when you think it out, include yourself in it. Then he says, There may lie the answer. That's all he said to me: You go look it over and think it over and if you can't come up with the solution, put yourself in that problem along with the other stuff and, he says, there may lie the answer. And that's all he'd say.

Good advice. Good advice.

I know once when I was a youth I'd just gotten out of high school and I went to Wyoming to work on a sawmill, and I went to Evanston, Wyoming, and I really wasn't old enough to drink anyway but I went in a bar with the loggers and had a few. The Union Pacific section hands come in there. We got into a little tiff, and at that time in my life I didn't think people come in herds that could whip me.

[01:13:48] End of Track 2, Disc 2.

[End of interview]