Office of Legacy Management
RFS RETIREES VISIT

Oral History Project
Interview of Jack Weaver
October 6, 2022
Interviewer: Taylour Whelan

TAYLOUR WHELAN: This is an oral history interview conducted on October 6, 2022, by the [U.S.] Department of Energy Office of Legacy Management in conjunction with the Rocky Flats Retiree Tour that occurred yesterday, October 5, 2022. My name is Taylour Whelan, T-A-Y-L-O-U-R W-H-E-L-A-N, and I will be conducting this interview. To start, could you please tell me your full name and spell it for me.

Jack Weaver: Jack Dale Weaver, J-A-C-K D-A-L-E W-E-A-V-E-R.

TW: All right, Jack. To begin, we're gonna start at the beginning. What was your position at the plant at Rocky Flats?

JW: Well, I started the day after Labor Day in 1961, which was September the fifth, as a laborer. I came in to — uh — Rocky Flats at, there were, laborers and janitors were the entry-level for people that didn't have degrees. And — um — I knew as soon as I joined the labor gang that I was gonna go someplace else on the plant site. But as an hourly person, you had two things you had to do. One, it was a closed shop so you had to sign in with the union. The other was that you had 30 days of, kind of a, 'you gotta be there 30 days' kind of thing before you can sign in to anything else. But I started signing postings immediately and taking tests to move to another position. Because I was interested in math and chemistry and physics, I leaned towards that sort of thing, which was a chemical operator. But it, you started out as an assistant chemical operator and stuff. So in October of — uh — '61, I became an assistant chemical operator. Um — I was immediately assigned to 771 building. Well, 71 at that time. It was only a two digit — uh — designation. And I worked — uh — 13 of the first 14 days in the building mostly doing decontamination work and such. And — uh — I was transferred then to 776, or 76 building as it was known then, in the foundry as assistant chemical operator. And — uh — my job basically at that time was to assist chemical operators in the processing of plutonium materials and making components or parts that were to be machined to go into the nuclear weapons. Uh — I worked that from October until March. The premise was that you had to be an assistant chemical operator for two years before you could become a chemical operator. But because the military and the government were in an accelerated rate for making nuclear weapons, they waived that. So, I took a test and I became a chemical operator. I went back to 71 building, worked a week on days and went to midnight shift. So, off and on for the next 17 years, I worked midnights and p.m. shift in 71 building — um — primarily as a chemical operator; 12 years as an hourly chemical operator. During that time — uh — of course, '62, summer of '62, we had — uh — a strike. Went out on August first, came back on August 28. And one of the things that we struck for, obviously, was more money and benefits and stuff. But one of the things that was paramount in that strike was not to go on seven-day shift. We came off the strike and immediately went on seven-day shift, so there we

were working seven days a week. Well, it was seven on and two off; seven on, two off; and seven on, three off. So you had one long weekend and one weekend where you worked and had a day of time and a half overtime and stuff.

And we worked that for a couple of years because of the need for — uh — increased throughput through the system. Well, in, also in ’62, they started the revamp of 71 building where they added a new cafeteria and offices and such to the front of the building. They took the old area that, where the offices and cafeteria had been and converted that into a production facility, and had it in place in 1963 so that we could increase the throughput capabilities in 71 building.

In doing that, we were increasing the amount of material that went through the system to make buttons, pure plutonium, to ship to the foundry so that they could make components units and such. Um — we did that, basically, for a number of years. Um — we were still working on seven-day shifts when the ’69 fire occurred in 76 building. Um — that was on May 11, 1969. It was Mother’s Day. And as most people had been with their families at some point, I’d been with both my parents and my wife’s parents that day, came home, got a phone call about six o’clock that said, “Get your carpool and come to work.” I said, “What’s wrong?” My boss said, “Just get here.” So, we came out to the Flats and — uh — down to 71 building. We were told that there was a fire going on in 776 building, and that we needed to prepare — uh — for what was going on up there because they were putting water on the fire. And there was a tunnel between 71 and 76, and the water was coming down the tunnel and it was contaminated and such. And — uh — so we were setting up to collect the water, take samples, ship it to 74 building so it could be processed and such. And we did that all night the first night. Well, we did it for a week, but all night the first night and — uh — into the day shift because the day shift didn’t know what was going on. When they came in, they got them together. We didn’t get out ’till about ten o’clock in the morning. Well, the next night when we came in, some of us were assigned to go to 76 building and — uh — go into supply there and start removing material that had burnt from the fire. The fire had been put out and such. Um — but there was a lot of metal, plutonium metal, that had burned into an oxide. And because of all the water they used, which is an issue with criticality, we wanted to get the material outta there as soon as possible. So we went up and supplied breathing air and — uh — packaged this material and shipped it to 71 to be — um — dried and processed.

And we did this for, I don’t know, a couple of weeks, I guess. Um — about the first of August, I came in one night to go to work, and my boss said that “You don’t work here anymore.” (laughs) I said, “What do you mean? I get fired?” And he said, “No, you got burned out,” which meant that I exceeded the DOE limit. So I was shipped to 74 building, which was considered a cold building because they didn’t have anything but waste products.

So I — uh — I spent the rest of the year in ’69, in 1969, in 74 building working waste treatment. And — uh — at the end of the year, well, everything goes back to zero on your radiation dose, so then I was back into the process. But I got shipped to 76 building to work in molten salt recovery. And so I was around the cleanup and such that was going on with 776. And — uh — so I spent most of the first half of, or all of the first half of, 1970 in — uh — 76 molten salt. July 1, 1970, we went on strike. Again, we were looking for money and benefits and such. And that was called the 71 days in ’70. We were out for 71 days on strike before we came back to work

and such. And when we come back from strike, well, I went, I was reassigned to 71 building. And we were back on seven-day shift and such. And we were back into production as fast as we could because they hadn't done any production during the time that we were on strike and such and so — uh —got a chance to get back into the grind and get back to work. And I was on jump shift initially and then went back to midnights. Uh — the — uh — '69 fire had caused a lot of concern over being able to make components for nuclear weapons. And 707 building was just beginning to come online. And so they finished up 707 building so, because 76 was essentially out of the picture because of the fire and such, so we were making comp, or making — um — plutonium metal to go to 707 so that they could make the components then and stuff. And we continued cleaning in 76 building. And 76 was eventually turned into a storage facility, as such.

In 19 — uh — 73, I was working midnight shift — uh — in 71 building. Uh — I had signed a posting for a foreman's position. Uh — I was called in by the building manager and the operations manager and told that the position was on day shift and that I wasn't going to get it, but if I was interested in being a foreman, they would make me a foreman on midnight shift, which was to be the first foreman under Dow Chemical to work on the same shift that they had been working as an hourly worker. So I was kind of a guinea pig in that respect (laughs), as such.

But I became a foreman in '73, June of '73 and — uh — worked on midnight shift until 1979. And the director of plutonium operations — um — in those years under Dow Chemical was Mr. Ed Vejvoda. And we had a very good rapport with one another. And he used to come to the building and I'd give him tours and such. Well, he asked me to go on day shift and take over a project to put in a new hydrofluorination system in 71 building, which I did. And — uh — worked with Swinerton & Walberg to install the fluorinator. We got it in ahead of schedule and under budget, got it started up, and — um — was running really well. I'm now on day shift for a change when Ed approached me and said, "I would like for you to go to 371 building and start it up." Well, 371 building had been a situation where in 1968 — uh — the AEC [U.S. Atomic Energy Commission] and Dow Chemical decided that 71 building would be past its usefulness in 20, in a 25-year period, so they were gonna build 371 to replace it. It was supposed to come online in 1976, and it didn't come online until in the '80s. And I had the opportunity to go to — uh — 371 in January of 1980. I spent three months running the building from top to bottom and learning everything I could about the processes and all the piping and where everything was situated. And then started bringing chem-ops into the facility to start the facility up and start it running. And during that time from 1980 to 1985 when I made another change, but during that time we started every process in the facility except for americium recovery, which was not ever designed to go after 1979 Oak Ridge, [Tennessee], said, "We don't need any more americium, so don't give us any more." (laughs) And so americium became a byproduct, or a waste product.

And the incinerators; I had two incinerators in 371. One was a low-specific activity for office waste, and it ran, no problem. Our high-specific activity incinerator, which was to run nuclear materials that were waste materials, scrap materials — uh — was a big rotary drum unit. And — um — we had to prove that we could operate it according to the state requirements. And, we could never do that because every time we heated it up to where it was supposed to run, it expanded to the point where it wouldn't turn on its rotary unit. So, we had to abandon that. Well, the other process that we didn't do was the hydrofluorination. We did everything else up to hydrofluorination, but we took the plutonium dioxide and sent it to 71. They fluorinated it, sent it

back to 371, and we fired that hydrofluorination material, or HF material, into buttons, which we shipped to the foundry. In 1985 — um — well, in 1975, Dow left and Rockwell came in. But Ed Vejvoda was still the director of plutonium operations. And Ed came to me and said — uh — "I want you to go to 71 building and take over building manager and operations manager."

And so I went to 71 building in June of 1985 and became the building manager and operations manager. And — um —again, we were in an increased production rate. And — uh — so we were working seven-day shift, and we had a lot more people and stuff than we'd had back in the '60s and '70s. Anyway, I ran that operation until — uh — the fall of — uh — '88. In September of '88, my wife and I celebrated our 25th anniversary, went to Hawaii. Came back from there, went back to work, and I was having problems. I went to the doctor. He said, "Whatever you're doing, you've gotta change," 'cause he said, "Your blood pressure's way out of whack, and you're not gonna make it if you don't do something different." So I went to my bosses and said, "You know, I've gotta do something different." So they allowed me to create a position called health and safety area management. So I transferred to health and safety and started to build this group. Uh — the gentleman that replaced me in 71 building, John Bretzke, had been an engineer and stuff. And he moved into the position that I had. Well, on October 13 of 1988 — um — the off-gas system on the incinerator failed and had a lot of holes and stuff and was leaking contamination, so the incinerator was shut down. And I was the only guy running the health and safety thing at that time, so when we did the — uh — management, or the maintenance — uh — procedures, my signature was on everything as far as okaying what we were gonna do and stuff. Well, in December of 1988, we were doing an inventory, as DOE had required we do an inventory twice a year. We did it in June and December. And we'd shut down for a month, clean everything up and account for it, and then start back to work. Well, in doing the inventory, we would steam down the gloveboxes with live steam, 130-pound live steam, which created a lot of heat. That heat was just going out the stack. The flyover by the EPA [U.S. Environmental Protection Agency] took place December 16th, I believe it was, of '88, in which they saw the heat from the building and assumed that the incinerator was running illegally. That, in turn, caused the FBI raid — uh — in '89. And, of course, when the FBI came in, we were told to meet with the FBI agents and tell 'em whatever they wanted to know. Well, I got called to come down to 71 building and talk with the FBI agents, two of 'em. It was a little bit nerve-wracking because I went in and one of the first things they said is, "We're gonna prove you guys were illegally operating in this building, and we're gonna put somebody in jail." Well, that didn't make me feel too good, (laughs) you know, being basically threatened with going to jail. But I spent a couple of hours with 'em explaining what had happened 'cause they had all the paperwork with my name on it: the procedures, the maintenance work — uh — procedures and all that. And that's the reason I got called was 'cause my name was on everything. And, we went through all that, and I didn't go to jail. Um — they never found that we ran illegally. They finally determined that what we were saying was in truth that we were down for inventory. But what they did find were some environmental insults, you know, and stuff. So that, that was what essentially closed the plant down in the end of '89. Admiral Watkins was the head of the Department of Energy at that time. And he issued a letter to close Rocky Flats and basically do a complete refurbishment, new procedures, training, and everything. Well, Rockwell left December 31st of '89, and EG&G [Edgerton, Germeshausen, and Grier] took over in January 1 of 1990. And EG&G brought in a lot of ex-NUC [Navy Unit Commendation] Navy guys and stuff. And — uh — so one of the things that they did essentially in January of 1990 was to put together a program called the issues evaluation

program. And I was put on the committee to review the issues that were generated by people on the plant site, both hourly and salary. And they would fill out these cards and send 'em in to us. We had a weighted program to evaluate 'em by and prioritize them for repair or training, whatever the case may be. Well, during this time, the gentleman that was overseeing our committee is named Anson Burlingame, and he was an ex-NUC Navy, and he found out that I had ran 371 and 771, so he said, "I wanna meet with you every day at three o'clock." So, three o'clock come around every day, and we would go to his office and meet with him and some of the other — um — they called 'em AGMs at that time. Uh — they were assistant general managers of different operations in the plant site, like maintenance and — uh — Pu [plutonium] ops and stuff, health and safety.

So we would meet every day at 3:00, and I would basically do a stand-up training program for these guys because they were in the Navy and did things a little different than we did at Rocky Flats. They didn't understand or know about recovery of plutonium from scrap and making it into components for nuclear weapons. They understood nuclear weapons in the Navy, but they didn't understand what we did. So that was my deal for about six weeks was to train these guys, (laughs) if you will. Um — it was kind of a deal because here I am just a guy out in Rocky Flats, and I'm talking to these guys that were captains and admirals and stuff like that in the Navy and trying to explain to them what we did and how we did it and why we did it. The other thing I tried to get them to understand was the union, because in the military you give an order, you get a salute, and the order's carried out. With the hourly union, you give an order, you get it questioned, and you may or may not get it done. And that was really upsetting to those people. Um — so it took some time to get through to them the difference between what they were used to and what was going on at Rocky Flats. Anyway — um — in — uh — 1992, I had a couple of experiences, which I'll relate. The first one was the Russian tour, where the government brought in — uh — a number of Russian nuclear people. And each one of 'em had a designated — um — person to be with them, which turned out to be a CIA individual, after I found out what was going on. But I was in the lead for touring Rocky Flats and explaining to the Russians what was happening at Rocky Flats without going into classified information. Um — the biggest thing that they were interested in, of course, was 371 and the storage of material and the stacker/retriever and stuff like that. Well, we spent a whole day with 'em and such. We got through the Russian tour. Well, shortly after that, we had an incident in 71 building where a maintenance person got contaminated, and he felt like he was going to — uh — die from plutonium inhalation. We put together a program. My boss asked me to head this program up, where we would go — uh — get this person counted so that they could prove that he didn't have anything 'cause our body counter showed that he really didn't have anything in his lungs, but he felt that he wasn't being told the truth. So we — uh — put this program together. And — uh — we went to Hanford and got counted. We went to the — uh — test site in Nevada and got counted. We went to the EPA Center at the University of Las Vegas, [Nevada], and got counted. We went to Oak Ridge, Tennessee, and got counted. And each time we got counted at one of these, we'd come back to Rocky Flats and get counted in the body counter again and, for the comparison. We were going to go to Los Alamos, [New Mexico], and get counted, but Los Alamos said no because one of the people on the team that I put together was the president of the union, and they didn't want any union people (laughs) coming to Los Alamos and causing problems. So, we didn't go to Los Alamos. But, basically, it came down to that we found that the individual had no inhalation of plutonium. But he still had a problem with it, so he finally terminated and left the site.

Along in this timeframe, well, in 1992 again — um — in May of '92, I was asked to go back to plutonium operations to be the deputy assistant general manager of plutonium operations, and which I did. I left health and safety and went back to plutonium ops. My boss — uh — was enrolled with an MBA [Master of Business Administration] program through EG&G. And she was gone one week a month and one month a year to Boston to get her, for two years, to get her MBA, so I basically was running plutonium ops at that time. But we were trying to get back into operation so were writing a lot of new procedures and doing a lot of training and such.

I was assigned during this time to be on a team to write what was called a Basis for Operations, a BFO, which we did. It was approved by DOE. And to my knowledge, it was the only document that was ever generated to allow a building to restart after a shutdown because of health and safety and problems that were identified. Anyway, we got back to that. Along about that time, it was 'tear the wall down.' The Cold War "was over." Maybe. (laughs) Anyway — uh — it was decided that Rocky Flats wouldn't return to operation, as such, that it had done before. And — uh — so then it was on to D&D, demolition, decontamination, of the site and tearing down the facility and such. Um — after we finished the BFO in — uh — September of '96 — um — I had 35 years in. And I decided to retire, so September 30th of '96, I retired. But during that time when I made the decision to retire, I was asked if I would — uh — like to stay on at Rocky Flats and become a contractor and work with the contractors on the D&D of Rocky. So I did. I first joined Los Alamos Technical Associates. Then later I was with Daneira, and then finally with Energex. They were all — uh — consultants to the cleanup of Rocky Flats. And I stayed until 2002. Uh — June 5, 2002, I left the site — uh — retired for the second time. And — uh — a week after I left, I got a phone call from one of the individuals that was working on the — uh — Radiation Worker Dose Reconstruction [Radiation Dose Reconstruction Program] — uh — for the University of — uh — it's ORAU, Oak Ridge [Associated] Universit[ies]. And I said, "What's up?" And he said, "Well, we got these four guys that are on the DOE oversight team. They're all Ph.D.s, they have no knowledge or experience with Rocky Flats. Could you join the team and, essentially, train them to what went on at Rocky Flats?" So I did.

So from 2002 through the end of 2006, I was on the DOE oversight team, worked with DOE — uh —OSHA [Occupational Safety and Health Administration], NIOSH [National Institute for Occupational Safety and Health], and such — uh — on this dose reconstruction. In 2006 after the reconstruction was completed — um — I was asked to come down to Arvada and start reviewing some materials that were given by DOE to the — uh — Rocky Flats Cold War Museum group. So I came down, and the girl that was running the process knew a lot about — uh — museums and stuff, knew nothing about Rocky Flats. So, again, I'm in the training mode, if you will, and also identifying, going through and identifying, each of the materials that had been donated to the museum. And so I've been with the museum ever since — uh — 2006. I'm on the board of directors with the museum. During that time — um — we did a number of — uh — interviews, such as we're doing today. Um, the local PBS [Public Broadcasting Service] station, Japanese PBS — uh — English PBS, a gentleman that was doing interviews for Rocky Flats to write a book. Uh — we did history — uh — interviews for the history museum in Boulder, [Colorado], plus — uh — some DOE history stuff that Don Roff did. So I've been involved with Rocky essentially since I started there in 1961, so it's been a long, long time working with and talking about Rocky Flats. With the museum, we also do presentations to schools, civic groups — uh —

church groups, anybody that wants us to come and talk about Rocky Flats, what we did and — uh — that sort of thing. So we do that quite frequently — uh — these days is to talk to people.

And the thing is is there's so many people have come to Rocky Flats, or not Rocky Flats, but to Colorado, that have no concept of what went on at Rocky Flats. So it's kind of another learning or training situation for people to learn about what we did and how we did it and stuff. All the way through that is staying away from the classified materials. I've also done classified interviews with OSHA, NIOSH, Department of Energy — uh — over the last few years, where I've had my clearance reinstated so I could talk to them about classified materials and stuff. And people say, "Well, don't you forget that stuff?" And I say, "No." I mean, it's in my head. I've been there for so many years, it just stays. And I just, for me it was easy. And I've been asked the question — um — "If Rocky was still running, would you be there?" And I said, "Yes." I loved working there. I loved working with the people that were there. There were some really, really smart people that worked at Rocky. Um — I was just a farm boy from Longmont, [Colorado], that came to work at Rocky Flats and had a great career.

TW: So, you said you were a farm boy. How did you get started at Rocky Flats if you were a farmer before that?

JW: Well, I was born on a farm north of Longmont and basically raised in the Longmont, Berthoud area. We lived on a ranch up by Carter Lake. My problem with the farming was I had hay fever really bad. So, for me, farming wasn't really in my future. So, after I graduated from high school, my first job was working for Continental Airlines at — uh — Stapleton Airport, [Denver, Colorado]. I did that for a year but driving back and forth between Longmont and Stapleton, they were building what we called the Valley Highway then, which is I-25. And it was really hard (laughs) to get back and forth to work. So I quit in September— uh — of '60 and went to work at the Ford garage in Longmont, and then later Red Dale Coach making campers and stuff. Some of the guys that I went to high school with and that I had grown up with that were farm boys like me had gotten jobs at Rocky Flats. And they were telling me about what was, what they were doing and the money they were making, and I was like, 'Well, why not?' you know. So I put in an application — um — and a clearance application. Got my clearance in — uh — July of — uh — 1961. That was 1960 when I put in the, December of '60 when I put in the applications, and I got my clearance in July of '61. I went to work September 5th of '61. And — uh — like I say, I loved every minute of it.

TW: You mentioned you worked midnights for much of your career. (laughter) How did an ordinary night for you go if you're working midnights?

JW: Well, this is kind of a funny thing. I went to work September the 5, 1961. I got married September the 5, 1963. We had our first child in August of — uh — '64. And I was working midnights. So I would work it from midnight to 8:00, come home — um — stay up for a little while, maybe catch some sleep. After my son was born, then I spent time with him. And as he was growing, you know, one and two years old, we lived across the street from a park there in Longmont. And so I'd take him to the park, and I'd stay up 'till two, three, four o'clock in the afternoon. Then I'd go to bed, get up about eight o'clock, something like that, have a bite to eat, go back to work at midnight and such. And — uh — so it was just kinda one of them things that you did, you know. Well, I was hourly at that time. And, so I didn't have enough seniority to go, I didn't wanna go to p.m. shift and just work 4:00 to 12:00, come home, sleep, get up, and go back to work 4:00 to 12:00. So I was

working midnight shift. I had enough seniority to get the day shift in 196, spring of 1968, so I bumped on to day shift. Turned out I was the only young guy on day shift. All the guys that I was working with, a lot of 'em were — uh — ex-military out of World War II and Korean War. And a number of them were miners from Frederick, Firestone, Dacono, Louisville, Lafayette, [Colorado], that sort of thing. But they were all older guys. And I'd go out to break, and I just couldn't associate with them 'cause I didn't have the same interests that they did. They talked a lot about how bad they felt and all that. I had never even been in a hospital 'till I had my tonsils out. (laughs) And so, I couldn't get with the program with these guys, so I wouldn't even go to break. I'd go to lunch, but I wouldn't go to break. I'd just work. So finally in the fall of '68, I went back to midnight shift. Uh — those guys wanted to send me to see a psychiatrist 'cause they thought I was nuts. But I went back to midnight shift, and I was working with the guys that I went to high school with, the guys that I grew up on the farm with and stuff. And — uh — we all had common interests. We all got married about the same time. We all had kids about the same time. So we were kinda the family, you know, the midnight shift family. Which, you know, looking at Rocky Flats, to me Rocky Flats was a family. I mean, it was a town. We had everything that any city had. We had fire department, police department. We had medical department. We had cafeterias. Uh — we had a general manager, which would be the same as a mayor and stuff. But it was family. So going back to midnight shift was just being part of the family and stuff. Um — it was kind of, well, it wasn't difficult, but it was kinda hard for me to explain to these guys I'm riding in a carpool with two of my brothers-in-law and two guys that I went to high school with. And I got the foreman's job, and on the way home I said, "I need to tell you guys that if you gotta kick me out of the carpool, it's okay. But I'm your new foreman." (laughs) And they said, "You're what?" And I said, "I'm your new foreman. I just got picked to be a foreman on midnight shift." So, we had a beer and celebrated. (laughs) But — uh — no, that was, it was, for me, it wasn't all that hard, although there were times when I didn't sleep enough, you know, and stuff. It was hard in that respect. But, you know, you sleep four to six hours, you do what you gotta do, take care of the family, go to work, come home.

TW: You mentioned carpooling. How did the carpooling system work?

JW: Well, for us, it was pretty easy because, like I said, I had two brothers-in-law and two guys that I went to high school with that were all on midnight shift with me. We all lived in Longmont. And what we would do is take turns, you know, we'd drive, I'd drive every day for a week, and then next week, one of the other guys would drive for a week. And we just switched off like that and stuff. But it was just something that we did; it just automatically worked for us.

TW: It has been mentioned multiple times, the family atmosphere at Rocky Flats. Could you speak a little bit more to that?

JW: Sure. Um — you know, you work in a place that's got a lotta people that you have to deal with. You always, in a large organization, you always have the 2 percent that are kinda knotheads that you have (laughs) to deal with. But the other 98 percent are just really good people, and you get to know 'em. You get to know their backgrounds. You get to know their families off the site. But it was a situation, again, where the guys that were in my carpool and the other guys that were on midnight shift with me, we were all about the same age. We all had similar type interests, you know, hunting, fishing, bowling, playing softball and basketball outside of the site. So we did a lot of hanging together. I mean, we were together a lot on and off the plant site. So it was,

for me, it was just like, 'Okay, these guys are my brothers,' you know. I never had a brother, but these guys were my brothers. And so we just, we hung together. We were family and stuff. And later on, I didn't mention it earlier, but in 1976, we had had female personnel in the facilities as clerks and secretaries and such. But in 1976, we got our first female operators in as chem operators and stuff. And, again, you know, you get to know the people, and now you've got sisters working with you. So we got brothers and sisters working together on site. Um — some of them, obviously, got together and became couples and stuff like that. But it was just, we're a family. I mean, we go to work together. We cover each other. We're backing each other's back and stuff. So, it was a family atmosphere.

TW: Did that continue after you left Rocky Flats as well?

JW: Oh, yeah, yeah. I still see — um — some of the people that I worked with from time to time, you know. And it's still, 'Hey, how you doin'?' You know, we're just, it's like a brother/sister kind of thing. Um — course I see my relatives fairly often. Um — some of them aren't doing too good because of age and other issues. But my wife was one of eight kids, so we see a lot of family. (laughs)

TW: Did you have any influential mentors during your time at Rocky Flats?

JW: Oh, absolutely. I mean, you can't work at a place like that and do what I did without mentors. My first mentor was a crew leader named George Stapleton. Uh — he was an ex-military Army guy that had been in Korea, gotten shot up, and had one leg shorter than the other and stuff. Um — great guy, taught me a lot. Um — then our boss — uh — he was actually an engineer in — um — his first name was Charlie and we called him Charlie Tuna because everybody got a nickname of some kind when we started there. My first boss was, on midnight shift was — uh — Jim Smith, and we called him Birddog because he bird-dogged everybody to get work done and stuff. I eventually became Charley Weaver. I don't know if you can associate that name to an actor that was on TV in Hollywood back in the '60s. He was on a program called "Hollywood Squares," but he'd been on the radio. Cliff Arquette was his real name but he went by Charley Weaver. And I got hung with Charley Weaver, and it's still there today because my wife still calls me Charley. 'Cause my dad's name was Omer but he was called Jack. And I was Jack Jr. but I really wasn't. (laughs) So when Charley came around, I just automatically became Charley. But, yeah, we had a lot of mentors. I had, well, Ed Vejvoda was probably my biggest mentor because — uh — he was like a grandpa to me. I never had a grandfather that I knew. Both my grandfathers passed away when I was a little kid. And Ed treated me really well. We got along really well. Uh — I always treated him with respect, did whatever he asked, did a lot of tours, gave him a lot of information. And so he made sure that I got to do what I wanted to do and got to move up through the chain of command and stuff. I still, Ed, to me today, is still my grandad.

TW: Yesterday, you had talked about the transition to mass production at the plant. Can you talk about that transition and the process that you went through with that?

JW: Okay. Um — in 1962, the AEC [U.S. Atomic Energy Commission], at that time, and the military were looking at increasing the production throughput at Rocky Flats because none of the other sites could match what we were doing as far as throughput production. And that's when they started hiring more people and developing more processes, in which '63 we changed — uh — half the building into a secondary process or

recovery of plutonium from scrap. And — uh — we started up in late ’63 and, but running on seven-day shift, we put through more plutonium through the process than had ever been put through any production facility in the United States. We made more metal out of the scrap, sent more metal to the foundry to be made into components. Um — and the components that were made in the foundry — um — they did two different things. We made pure plutonium metal. And we sent the buttons that we called ’em, they were about 4 inches in diameter and about a half inch thick. And we sent those to the foundry. And, if they were making — uh — internal components, they would cast the buttons in a vacuum furnace into a graphite mold for whatever shape that was.

If they were making the hemashields, they would add gallium to the plutonium when we put it in the furnace, melt it down, and cast it into an ingot. Then they would roll that ingot through a rolling mill into big sheets, cut those sheets, send ’em to a — uh — hydroform press, 2,500-ton press. And they would press these into what we called hats, which were, looked like a brown derby is what they looked like. And we’d cut the excess, the brims off, and sent the hemashields to the — uh — lathes for the machinist to cut ’em down into hemashields that were the outside component for the nuclear weapons. They also machined all the internal components, whether they be whatever, you know, that went into ’em. Then from there, they would send ’em — uh — first to radiography to make sure there weren’t any cracks or defects in ’em. And eventually, they would go to the cold rooms where they’d put all the units together and welded them. And they hand welded them initially, but then it, after a while with the discovery of electron beam welders and mechanical welders — uh — they welded them with robots and stuff. And from there, then they were tested — um — before they were shipped out and sent to Pantex where they were put together with the — uh — other components that needed to be installed in the nuclear weapons, in the torpedoes and stuff. From there, they went to the military. So, that’s kinda how we did things. But, yeah, we increased the production throughput, many times over — um — during that ’60s period.

Now, we ran a continuous operation in 771 building where you put the material in and ran it through each of the processes. Um — we had an incinerator for burning materials: scrap materials, plastics, and such. And we’d dissolve those materials, the ash that came out of the incinerator, in nitric acid. Nitric acid then was batched and ran through an anion exchange process where the plutonium’s collected in the resin in the anion exchange columns. Well, when they were loaded, or had the right amount of plutonium on them, they were backflushed and plutonium was taken off in the form of what we called an [allioate?]. That was taken to a batching box, which it was batched with other materials. And it was pumped to the — uh — precipitator. The precipitator, we added hydrogen peroxide to, and hydrogen peroxide’s no more than water. So when you refrigerate it, it turns to an ice. Plutonium would collect on the — uh — hydrogen peroxide crystals. From there, dropped into a drum filter where it vacuum sucked the excess liquid off. And “green cake,” as we called it, was scraped off of the filter pad into a boat. We took that boat, put it into the incin, or into the — uh — calciner. And the calciner was 450 degrees C, eight hours in the calciner came out the other end as a green granular material, OD green in color. That was plutonium dioxide. We would collect that in certain amounts, store it ’till we had enough to run the hydrofluorinator. When we had enough to run the fluorinator, we would introduce that material into the hydrofluorinator, which was another rotary tube which had three heat temperatures in it: 350, 450, and 670. And we introduced HF [hydrogen fluoride] gas into the hydrofluorinator

on a countercurrent flow, flowing back through the — uh — tube. It converted chemically from PuO2 [Plutonium(IV) oxide] to PuF4 [Plutonium(IV) fluoride]. That PuF4 then was a high-neutron emitter, so we had a lot of shielding on the gloveboxes. When I built the fluorinator in '79, we had a 4-inch water wall. Um — when I went back to run 71 building in '85, because of some of the excess exposures that we were having from the hydrofluorinator, I put another 2 inches of water wall. So, we had 6 inches of water wall on the glovebox. So if you can imagine trying to work through gloves and take 6 inches off the length of your arm, it makes it a little difficult to do. But anyway, the PuF4 then was sent to the reductions area where it was mixed with calcium metal, put into a — uh — unit that was called a reduction vessel, and it had a mag oxide crucible inside. And we'd put the PuF4 and the calcium in, put it up in this furnace, heated it up until the chemical reaction took place between the PuF4 and the calcium metal. When that happened, there was a reduction in neutrons, and you could see the pressures go down. We'd let the unit cool. We'd fire on one shift, and then the next shift would come in and break out the buttons and such, sample, and send 'em to storage in the tunnel in 71 before they got the answers back on the analysis and then send 'em to 76, or 707 later on, for — uh — casting in the foundry. So that's kind of a quick and dirty on the process.

Also during that time frame, we had a lot of site returns — uh — which were both plutonium and uranium. Plutonium was extracted from the uranium. Um — the uranium was then, as a byproduct or a waste, sent to waste processing. The plutonium was put back through the system through molten salt where the system was to extract the — uh — uranium, or I mean the americium out of the plutonium 'cause plutonium will decay into americium.

So we extracted the americium out of the plutonium, and we ran it through a cation exchange process and then a — uh — oxalate precipitation process. And then ultimately put it into a small furnace and cooked this oxide into a dry oxide, which was a very high gamma. It would run 90 to 100 mR coming off. We worked through, ordinarily, our glovebox gloves were 35-millimeter gloves with lead-equivalent. On the hydrofl, or on the — uh — AM box, they were 50 mils up to 110 mils. And 110 mil glove, when you reach into it, the first time you reach into it, you can't squeeze your hands together. So you had to get used to, it's like milking cows. You had to get used to doing this, you know, in the gloves. But we produced americium up through 1979 and sent it to the americium pool at Oak Ridge, [Tennessee]. In Oak Ridge, they called us and said, "Don't save any more americium. We have enough americium for five generations." Americium is used in a lot of different things. They use them in space exploration batteries, as well as plutonium is used in batteries. Um — it's used in medical tracers. It's used in — uh — smoke detectors you have in your house and stuff, minute amounts of americium and stuff. But it was a very hot material that we had to work with, but it was another byproduct of working with the plutonium and the uranium and stuff. So, different parts of the system that we had to put together to make everything work.

TW: Could you tell me a little bit more about your involvement with the Russian tour that had taken place at Rocky Flats?

JW: Sure. Um — because I was talking with the EG&G [Edgerton, Germeshausen, and Grier] upper management every day, when I was in health and safety I had to report to the, what they called the head shed, which was the general manager and his 12 assistant managers, every morning, to everything that happened

health and safety wise on the plant site the day before or during the night. So my days in health and safety were extremely long. I was at work at 5:00 in the morning and usually didn't get out of Rocky Flats until 5:00 or 6:00 in the evening.

But my first thing in the morning was to collect information from my people that had been there through the night and the shift superintendent and make a report. And then at seven o'clock in the morning, I would go to 111 and make a report to the — uh — general manager or plant manager and his assistant managers and then talk about the issues on how to solve some of these problems and stuff that we were having and stuff. Um — so I spent a lot of time with those people. Well, I got called one day and said, "We're going to have a tour of foreign individuals coming to the plant. We would like for you to be the tour guide," 'cause I was doing tours for a lot of people out of Washington, [D.C.]: senators, generals, admirals, that sort of stuff. "Sure. I mean, I'm here to serve." So, I got together with — uh — four other people, and we put a plan together on how we were gonna do this. Um — they brought them. And I didn't know at first that they were from Russia 'cause we had people that came from England and from France, in particular, some from Germany and stuff that were allies to the United States. So anyway, we met them this first day, brought them into the conference room. And each one of them had a corresponding tour person, which we later found out were CIA guys. (laughs) But they brought them in. They introduced each one of them to us. None of them ever spoke English. But the guys, the CIA guys, said, "Every one of them understands all the English. They're very fluent in English. They just don't speak it in front of you," and stuff. So we set up tours through the plant site and stuff — um — a lot of the non-nuclear stuff. But we did go down to 991 and tour in 991, which was a storage facility and shipping and receiving facility for nuclear materials. And while we were there — um — some way or another it came up that they wanted to see the storage facility in 371. So I had to call 111 building and get permission for us to take them to 111. Of course, we had to have guards with us and everything. But we took them to 371, took them in through the back entrance at 371, didn't go in any of the process areas. Um — took the elevator down to the subbasement and I spent the better part of an hour, (coughs) excuse me — um — explaining the stacker/retriever, which was designed as a storage facility — um — for storing nuclear materials. It was — uh — a very large thing to look at it. When you look at it, it had these two units. One was always in the maintenance bay, but the stacker unit itself — uh — would run up and down. It was on rails like a train, train rails and stuff. The stacker/retriever — uh — unit itself, it was — um — what was it? Sixteen-foot wide, 42-foot high, and 300-foot long, and it had 4,500 pallets. And these pallets, the nuclear material pallets had four positions where you could put nuclear materials in and store them. And all this information went into the computer so that they could keep track of what was in there. They had 100 flat pallets for maintenance use and stuff. And it was a very ingenious design except the problem that I created for it. (laughs) That was that in the design, when we started in 1968 when they determined they wanted to build a new building, they asked each of us to input what we thought we would like to see in a new building. And we did. Well, they hired an architectural engineer contractor out of California. And this was, like, 1972, I guess it was when the architectural engineer actually started working on the design. And we started sending people from Rocky Flats out to California and work, to work with these people. Well, I went out a number of different times because I was involved with the recovery process, and we would tell them what we wanted and stuff. And basically, they would say, "Oh, yeah, we know what you want. We've designed these facilities all over the world." Well, it turns out they had designed oil facilities, oil recovery facilities, gasoline type recovery facilities, that sort of

thing. They'd never designed a nuclear facility, as such. And so what we got was not what we asked for, essentially. But they determined that it was gonna be a batch precipitation, or a batch process where we would run the material through in small batches and different from the 71 process where we ran everything continuously. And, so we started operational in the summer of '80. We put, I put the first plutonium material in a stacker/retriever. In — uh — '81, I put the first material into the process in dissolution. And dissolution's where you use a steam-heated — um — nitric acid process to dissolve the materials. Well, when they designed this, they designed everything to be interconnected. And they put in these doorways, which one door would have to be shut before you could put anything into the other part of the line. And that door had to come down and shut before you could open this door and move the material. Problem was that the dissolution process gave off a nitric acid off-gas, which became fumes you couldn't see but they were in the process in the area. And they would leak through, and they got into the stacker/retriever. Well, a stacker/retriever is an electronic piece of equipment with a lot of electronic connections. They started deteriorating from the acid in the atmosphere. And so we had a lot of problems with the stacker going down, having to replace these electronic issues and, or electronic pieces and stuff.

But, again, we started everything that we needed to in the process and ran the process. Uh — we had a lot of issues with the processes because, (coughs) excuse me. What we asked for was basically an all-stainless steel system and a welded system because in 71 everything that was stainless was held together with flanges and bolts and that sort of thing. They had a lotta leaks. So, they put in this stuff. But in putting in the materials, the cost overruns, they decided to change some of the materials to carbon steel and plastic PVC, that sort of thing. So we had failures of PVC piping where we had 50 to 100,000 gallons of water on the floor that we had to pick up, fix the pipes and stuff. We had an issue where a — um — instrument failed and allowed a pencil tank that was supposed to hold — uh — 50 liters of plutonium nitrate or plutonium, no, 12 normal nitric acid that was to be used in the plutonium nitrate system. It filled this pencil tank up, and it failed to see the level and it didn't close the valve. So the tank in, 7,500-gallon tank in chem makeup, emptied into this pencil tank, which went back into the vent system and filled a whole lotta other tanks, including two carbon steel tanks in the incinerator canyon, ate the sides out of the tanks and dumped acid all over the floors, ate the floors up, that sort of thing. Um — so we had a lot of issues that could have been solved if they had done what we asked to begin with but because of money, time, that sort of thing. The other thing was I went to 371 in 1980 to start it up. The contractors were still working on building the building. They did not leave the building until I put plutonium in the system in 1981. So, it was supposed to be started in 1976, didn't get started 'till 1981, five years behind the time. Another one of those things we had to deal with.

TW: After talking to other retirees like yourself from Rocky Flats, there's an overwhelming sense of pride in the work that you did there.

JW: Absolutely.

TW: Can you talk a little bit about the source of that pride?

JW: Well, when you look at what went on with the Cold War, I had just started, obviously, in 1961. And then we had the Cuban Missile Crisis and [President John F.] Kennedy shut it down, you know, with the threat of nuclear weapons and stuff. And you get this feeling like, you know, we've got the stick. If somebody tries to get to us to overtake us or whatever, we have the power to back them off, the deterrent that we were building to

back them off. And there's a certain amount of pride in being able to do something like that to support the military and the United States of America to keep anybody from invading us. And it just, you know, you work with that and it grows with you and stuff. And I have encountered, of course the [Rocky Mountain} Peace and Justice Center out of Boulder, [Colorado], and other people where they have accused us of many atrocities because of what happened in World War II. And in reality, we have never done anything like drop a bomb on anybody else since World War II and stuff. But we've had the deterrent to keep anybody else from doing that to us. And I had a situation a few years ago when we were at the museum where a couple of ladies challenged us about working at Rocky Flats. And I just said, "You know, if you think about it, you know, we had a deterrent to keep people from invading our country so that you don't have to talk another language or eat another Russian soup or whatever." And I said, "You know, you really ought to think about that before you go off on somebody because of the work that they did." I said, "We're very proud of what we did. We did it to embrace this country and the military." Um — along about that same time, there was a group that was putting together a plaque for us. Um — they wanted some words to go on the plaque. And Ken Freiberg came to the meeting and said, "We need something to go on the plaque." Well, we went for a couple of more meetings and nothing was said. So I just sat down and started writing one day and handed it to Ken and said, "Here's what I think ought to be on the plaque," which is, which says, "Rocky Flats was dedicated to the men and women of the government and contractors that worked at Rocky Flats to provide a deterrent to keep the United States and the world free." And I thought that, I mean, that was my pride statement for what I did and how I felt. And that's what's on the plaque today, which we hope someday will be put in front of the visitor's center out at Rocky.

TW: (to off-camera) Do you have any questions? Good? Okay. Um — to, just as a last question for this interview, did you have any other memorable stories that you wanted to share or — uh — any other (overlapping dialogue; inaudible)?

JW: Oh, I have a lot of stories. I could sit here and talk to you all day. I, one thing, yesterday when we were riding around and talking — um — one of the people's names that was brought up was — uh — Dr. Bob Rothe. Dr. Bob was the only guy that I ever knew that had the title of scientist at Rocky Flats. There were a lot of associate scientists, but he was the only one that ever had a title "scientist." And he was a nuclear engineer, worked in nuclear safety, developed the limits for which we ran the buildings safely and all that. Well, in 1983, in April of 1983, I got a call from a Rad foreman, and he said, "Jack, can you come over to 886 and take a look at a situation?" And I said, "Well, what's up?" And he said, "I can't talk to you about it." He said, "Just get a full facemask and come on over." So, I got a full facemask and right after lunch I went over to 886 building. And — uh — [Gordon Weber?] was the guy that called me. And I said, "What's up Gordo?" And he says, "I'll show you." So we suited out, all the gear, you know, in full facemasks, gloves, everything like you're going into a regular plutonium area. And we go into the back, and they had what they call a split-table in the back where they used to run experiments, where they could bring 'em together and check for the radiation levels and stuff. And on this split-table was what they called a fish tank, which was a plexiglass tank that was 3 foot by 3 foot by 3 foot and it was open on top. And in this plexiglass tank were six little stainless steel containers and such. But I could tell right away when I walked up to it, one of 'em had ruptured and there was plutonium oxide coming out of it. Well, the thing was was 886 was never designed to have plutonium in it, only uranium. It had single filtration, not multiple filters to keep plutonium from getting out. And I went, "Wow, this is nuts,

man. They ain't supposed to have this in here." He says, "We've gotta do something about this and get it outta here."

Well, it turns out that Bob had ordered this material from Los Alamos to do experiments. He had brought it up, ordered it, and they put it on a truck, and they brought it up to Rocky Flats and unloaded it at 886 building. Well, when I figured out what I wanted to do, which was build a plexiglass top with ports in it where I could put gloves on it in a bag-out so we could bag this material out without disturbing it and stuff. I went back to 371, told my maintenance foreman what I needed. And no questions asked, just get it to me by the end of the day. So I called the — uh — I called Ron Newby in security and I said — uh — "I need a truck and guards to transport some material out at 886 to 371." "What for?" I said, "I can't tell you, Ron." He said, "Well, I can't authorize it." I said, "Well, who can?" He said, "Ed Young, the head of security." So I called Ed Young's office. He was in a meeting, told his secretary it was very important that I talk to him. So he called me back in about five minutes, and I said, "I need truck and guards." He said, "What for?" And I said, "I can't tell you." "What do you mean you can't tell me?" I said, "Well, it's, I just can't tell you over the phone." He said, "Well, you get up here and explain it to me." I said, "Okay." So by the time I got up to his office in 111 building, my boss, Ed Vejvoda, was there. So I went in and — uh — a lady, Dee Krieg, she was the head of transportation to and from Rocky Flats. So I went in and sat down with them, and I said, "We've got a problem in 886. I've gotta get some plutonium outta there." And they said, "No, there ain't no plutonium in 886." And I said, "Yeah, there is." "Well, where'd that come from?" So I explained how Bob had ordered this up, and Dee Krieg says, "I'm gonna kill him. He can't do that. He didn't go through me to get that material here." He ordered it up. It came through the back gate, (laughs) and nobody knew about it except him.

And everything that was supposed to be shipped in and out of Rocky Flats, particularly nuclear materials, was supposed to go through Dee Krieg. So anyway, Ed Young authorized me, he called Newby and said, "Give Jack whatever he wants." So he authorized me a truck and guards and stuff. And I said, "Have him down at 886 building about 6:30 in the evening 'cause I'm gonna do this after shift."

And so I went back to 371, got supplies, got 'em checked out, grabbed one of my foreman that was on p.m. shift, took him with me to 886 building. And we put this window on. We packaged the material, swept up everything that was inside, got it outta there, got no material,-no plutonium out, had a monitor with us to check everything, loaded it all on the truck. And it turned out there were 76 of these little containers with plutonium metal in 'em, pure plutonium metal that they were using for experiments that came up from Los Alamos. Well, my boss Ed Vejvoda, said, "Put it in a stacker/retriever when you get it outta 886." So we went over and put it in a stacker/retriever. I got outta there about one o'clock in the morning, left Ed a note and said, "I'll be in when I get in." (laughs) Went home, got some sleep, got something to eat, come back to work. About one o'clock, I called Ed. He happened to be in Ed Young's office. He said, "Come on up here," so I went up and I explained what we did and everything. He said, "Okay," he said, "I want you to get your guys to open every one of those containers. Take the metal out, repackage it, and send it to 707. We're gonna make parts out of it." I said, "Okay," so we did. The next day, Bob Rothe called me and said, "Hey, where's my stuff? Where's my metal?" I said, "Well, maybe you ought to talk to Ed Vejvoda." "Why?" I said, "Well, Ed's determined where and what should happen to it." So we went up and had a meeting with Ed Vejvoda and explained it to him, and Rothe went nuts (laughs) 'cause he said, "You can't do that. That all belongs to Los Alamos." Ed says, "Not anymore it don't." He said, "It's being made into parts this afternoon down at 707." So,

we did that. But that was one of those things that nobody except the immediate people that I worked with knew about because plutonium was not supposed to be in 886 building and stuff. So the plant site didn't know about it kinda thing.

Another one of those instances was when I was on the labor gang, when I first started. We used to go down to what eventually became the 903 pad and open up drums of carbon tetrachloride that was slightly contaminated and pour it into a pond and let the — uh — carbon tet flash off and stuff. And then they'd come and scrape the oil out of it every once in a while and bag it up. It was all contaminated. Well, it was contaminated enough that it eventually became, 903 pad covered over with — uh — asphalt and stuff.

But I had a lot of experiences where I had to do things that were a little bit out of the ordinary, kinda like those two things that not a lot of people got (laughs) involved with or knew about. In fact, the DOE thing — um — I was called to go to DOE and review a bunch of pictures. And — uh — there was these pictures of the pond and the drums.

And everybody thought that the drums — um — had filled up with water and rusted out, and that was where the contamination come from, and it partly was, but the main part of the contamination that was in the ground came from us pouring material into the pond. And I suppose in the days of the EPA [U.S. Environmental Protection Agency], if they'd have known about it, somebody probably would've went [gone] to jail. But it happened, ya know, kinda thing.

TW: Thank you so much, Jack, for sharing your story with us today, and thank you for your work at Rocky Flats. That will conclude our interview.

JW: Well, thank you. I appreciate the time and effort you people put into doing this. I really thought that DOE made a mistake when the plant was closing down that they didn't do this kind of thing with the people as they were exiting the plant site and stuff so that they would have a record of what was going on because there's so many people that don't know and understand what we did, how we did it, why we did it, that sort of thing. So I appreciate what you're doing.

TW: We appreciate it.

JW: And I thank you.

TW: Thank you.