Office of Legacy Management
RFS RETIREES VISIT

Oral History Project
Interview of Ken Freiberg
October 6, 2022
Interviewer: Taylour Whelan

TAYLOUR WHELAN: This is an oral history interview conducted on October 6, 2022, by the 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?

KEN FREIBERG: Kenneth J. Freiberg — uh — F-r-e-i-b-e-r-g on the last name.

WHELAN: Thank you. To begin, what was your position or positions at Rocky Flats?

FREIBERG: Okay, I started at Rocky Flats in first of July 1953 after I got out of the military during the Korean time. And — uh — I worked from '53 until the plant closed, basically. The positions that I mainly carried, I worked in health physics of the ranks of radiation — or CTCs, radiation control technicians or monitors. I worked then as a technician. I worked also as a foreman. And I worked as a unit leader through the time period of '53 through 1975. So, I went through all of those areas. I was the first technician — uh, uh — given the job of the technical group in that area and started a technical group in health physics, mainly for operations and the operations of the production.

After 1975, I was called in. Uh — Rockwell took over the plant from Dow Chemical Company. And when they did, all of us people that were assigned to a project called 371 plutonium facility — a new plutonium facility. And all of the people that were assigned to that project were going to be moved by Dow Chemical Company to Oak Ridge, Tennessee, to work on reactors all over the world. Uh — Rockwell contacted me — uh — as I came back from a meeting, and they wanted me to stay and go and be the program manager of the 371/374 project, which was just starting breaking ground on the construction. Uh — it was a 10-year-type project. I then took over the project. It was — uh — 3 … 215 million dollars — uh — about 400,000 square feet. And it would mainly do the new plutonium work that was being currently done in 771 and 774 and, in turn, was scheduled to be finished under the new contractor in 1980.

I took charge of that project and was in charge of it and the key personnel from Rockwell during the period of '75 through 1980. And then we finished all of the SO testing so … what SO testing is system operations — first, cold operations and, then, hot operations. And that takes every single area in the building, whether it be electrical mechanical — whatever it was.

The building was designed to withstand tornadoes with two second tornado valves. It was designed for criteria for earthquake, was designed to reduce the shielding everybody, and was designed on a batch-type basis of chemical processing, so we could use manipulators and robots and things of that nature, which we did. The

building also included a robot of — uh — 350 feet long — uh — 42 feet wide, 42 feet high, and 40-some feet … 40 feet … 42 feet high, and about 22 feet wide. It was a long, long area and, in turn, was going to be the storage area for all of the plutonium and nitrogen also. Uh — I stayed in charge of that, like I say, through all the SL testing — both hot and cold — and turned it over then to Jack — uh — Weaver and Ken Calkins and Ed Vavoda and the production of people.

We still work together — particularly Jack and I — because the building was designed as a batch-type operation, so we could incorporate all the new technology. But during the time, because it took so long to build a new plutonium facility, Rock … Dow Chemical went to continuous operation. I don't know if you know what the "continuous" means, but rather than one batch at a time — like a couple kg here, a couple kg there — it was continuous, like a lot of new production facilities. Um — there's old 71 was already on continuous operations. So, what was decided … they put me still in charge of the … the transfer and renovation of what needed to be done to go to continuous operations. Jack and I worked together then, into the … into 1979, 1980 … and did the necessary changes to adapt to plants, the new 371 … to adapt it to be able to take care of continuous operations instead of batch.

Jack came in, and we finally made buttons and things of this nature. And then the next job for the building was basically store all the plutonium on the plant site in that vault, which was done. The — uh — large stack of retriever, which was basically a large robot, — uh — Jack got all the systems operating with me. We went through all SO testing again and everything else. And what we did then is turn over the facility to the Ed Vavoda, Ken Calkins, and Jack Weaver. But Jack was the key individual that made the renovations with the construction of the facility that we needed to do.

Uh — the facility also vastly and greatly reduced the exposure to people. I — uh — yesterday, as I mentioned, I went into — anyway — the reduction of exposure to personnel that is allowed 12,000 mr (mrem) by DOE and by the state and everybody. And we actually reduced it down to 500 mr per person, which is way below any guidelines, way below any of the other facilities. This was primarily done by a lot of water shielding and different shielding and robotics, and it worked out quite well.

Uh — Jack took over the site, and they transferred me. Uh — they wanted me to get more experience of hourly people. I had all the construction-hourly people, but, at the same time, then when we went into hourly people on the job, it transferred me to plant services and trafficking and vehicle maintenance for — uh — about the next two years. And — uh — when that happened — uh — it was that — uh — I … I had about 600 people at that time under me — uh — primarily hourly and with some was the supervision along with. Uh — that was mainly to provide the transportation of all materials around the plant site — all site — and, at the same time, do the maintenance of all those large facilities … large vehicles and even working with the trains, et cetera. They did all of the transferring of everything around the plant site, and we had 26 miles of road. It was like a city. Rocky Flats was really built just like a community, with fire department, police department, security, et cetera … operations, FT … if you want to call it like Amazon or UPS. And it was done throughout.

Okay, from there, I was transferred in about two years to a building called 460. They wanted to build a new manufacturing facility for non-radioactive components for nuclear weapons. It was — uh — about a 300,000 square-foot facility, and — uh — it ended up, I worked with a fella named I. Decker (?), who was going to be the manager of the plant when it went into operations.

And I worked with all people in … that were going to be in the facility, including even down to the janitors … people that got down to the work. And we built that facility under the way civilians would do it, instead of DOE. It was a designed-build-type operation. I had full control, and what we did is we took a lot of input from the workers that actually did the work in the facility and also the managers that were going to do work in the facility. A simple example might be when we have women doing janitorial work. Well, the old sinks are about this high (motions with his hand). The new sinks for the women — when they have to move five gallons of water or whatever — were much happier with lowers sinks, so we put in lower sinks. We put in special floors, so it was easier to clean in accordance with the janitors. We put in special operations for the … the … well, not just the laundry but all of the facilities in the in the place, including the cafeteria … how they would process the people, how they process them in and out. But there was mainly a lot of input from all the various activities in the building, particularly maintenance, operations, and the services. And it worked out very well.

Uh — in fact, when the building … it was done in 11 months instead of two-and-a-half, three years. And it was done 37% under budget — first time it ever happened in DOE. The reason it happened is I put people also in the area of keeping track of exactly where we were, and I was able to pay the contractors within two days, after there's the middle of vouchers. I don't know how your vouchers work but normally when you submit vouchers to the government, it takes any way from 60 to 90 or more days. And then you're lucky. And what that did is gave us top priority throughout the city of Denver for all subcontractors and everybody else because they didn't have to borrow money. They didn't have to go and try and find money that they didn't have, and especially keep it on schedule because I knew exactly where they were by adding a few people throughout the area keeping track — not with the contractors were telling me but what my auditors were telling me at the same time. And they were inspectors with an AE (architecture and engineering) firm. It worked out very well.

Uh — in turn, I also picked regular people. I didn't pick a manager … they were sitting at a desk. I picked a manager that was out in the field, had field experience, current fieldwork experience, not … not experienced from a long time ago. And we did things then, like using helicopters and things of this nature, that was never heard of on DOE sites. But anyways, this project went real well. It was turned over to I. Decker (?). Everything in it worked. Uh — and it was a completely cold building.

As that happened, DOE turned all projects during that process over to Rockwell. And I was the guy in charge in charge … charge of that. I had — uh — about 50 to 100 people … about 100 people working directly as project engineers, project managers, things of this nature. And they would hire the contractors. They would do everything. There was about $175 million spent every year on projects. There were 1,250 projects when I took that over and about — uh — like I say, $175 million a year but $500 million worth of projects. And that never been done before — never.

So, we went and did that, and then after that I was — uh — assigned to well to put out new criteria for how to do project management and also how to build the nuclear facilities, which we put out new design criteria that's in the DOE books right today and also with the state books, et cetera. It included a lot of things like — uh — a lot of water shielding because, before, we couldn't … didn't even know what neutrons were when we first started. But we also did a lot of water sealing to eliminate the exposure to the people. And, like I said, nobody after that got more than 500 mr per year.

Uh — we went into production, but then — uh — other things came along, like — uh — the raid and things of this nature. Well, they put me in charge of … after I finished 460 and the other projects, and I did that for until about 1980 … seven, I guess. And then they asked me to — um — take over maintenance, which was about 1,250 people; plant services, which was 600 more people; HVAC, which was another 200 people; project management, which was another 100 and some people. Anyway, and I took over those groups under support operations, by the direction of — uh — Crossland, who was the support ops manager in the plant, and Jack [inaudible], who was a plant manager. Uh — after that happened — uh — I — uh — was asked — uh — what … what do I want to do.

They … they … before I even said that, they offered me the job of going up to Hanford and taking over all the Hanford jobs. Uh — they flew me up there for three days in the jet, and … and we went through orientation after orientation. And because of my wife and the family and things of that nature, I said — uh — no thank you. Uh — my wife and I wanted to stay where all the kids were and where everything else was, instead of getting into the business of moving from plant to plant to plant. And, in turn, I said no, and Jack told me, "You don't do that." Anyway, I told [inaudible].

And — uh — I then, after that, decided to retire, which was '91. And I actually retired from Rockwell. DOE immediately hired me, and I worked for DOE till … probably the mid … well … about 2011, 2012 … and still did work later on. And what that was … what that job was, they hired three of us: Harry Mumu (?), Bill Sayers, and myself. Uh — Harry Mumu was ex-full colonel in the military, came into DOE, and was in charge of all the engineering in Europe. He came into DOE in Albuquerque to take over all projects because, as the projects in the government weren't doing too well, as was exempted … exempted … shown here like on the VA hospital and other projects. And, in turn, Bill Sayers was a health-physics expert from all of the — uh — sites, and then I was the project-management guy and the health-physics guy and — uh — with a lot of new ideas from lessons learned from the contractors. And they put us … visiting all 15 nuclear sites with the weapons complexes and ask us to review 'em, make recommendations, and do that on … twice a year. Well, it took twice a year by the time we got doing that. And we did that until about — well — 10 … 20 … or 11 … something like that.

And then the last job I worked on with DOE was the CMRR building a 5.3 million … billion dollar project, which — uh — none of us really felt — the three old guys — didn't feel it was needed. We actually cut it down to $3.7 billion, but I still don't feel that it was needed the way it was script — er — described out in the in the criteria. And it was canceled by DOE — uh — about halfway through Title I engineering. And it was going to be the replacement for the CMRR building in Los Alamos.

Los Alamos now — after that I … I retired, but I still did consulting work for different engineering firms and DOE. But I did that for the last large project again in DOE, and it's been canceled. They're now looking at building another facility, which they've had no luck at — uh — so far to replace Rocky Flats. And they're looking at Los Alamos and Savannah River, and I've been asked to work on that some more.

My last boss in DOE was a Hermann LeDoux. Uh — I was paid consulting wages at that time of — uh —110, 120 dollars an hour, plus all expenses and … in charge for basically nobody, except we made reports every week and submitted them to DOE, and they were implemented at most places. And the design criteria is still there right … in writing. And I still do some consulting work. That's about it for time period, okay? I got more

specifics on exactly what the work was on project management, et cetera — what it covered, et cetera, if you need it.

WHELAN: If you want to go into that you can go into it.

FREIBERG: I don't think it's really necessary. I think what they found at Rocky Flats … we had a culture there that was family. It was a mix of professional people and a lot of hourly farmers, coal miners, ex-coal miners, and et cetera, with a production attitude to get a product out. And a lot of the other sites, there's too much done on paperwork, too much done … the work-control system getting in from the Navy near the end of the … the weapon productions. And … I went as an example in a maintenance group, from seven planners to 67 planners, because they have their people under control, 24 hours a day. They're trained for a specific job, a specific task, and that's what they stick with. They're under complete control. Their studies, their … their work, their ad … their hours, everything. And I was in the military for a long time, and that's great, but you don't find that in civilian life. So you got to get a mixture of people that'll direct the work, manage it, realize what kind of people you're dealing with, and treat 'em as people, and then also reward 'em where they need rewarding, correct when they don't, and work with unions, and things of this nature, which the military don't have to.

And what was decided from the Navy and us three old guys was that we would make some in-between, and that's what we did at the various sites. And that's being implemented still today, but they're still having a very hard time by — as Washington does — too many requirements, too much of this, too much of that. And it's very difficult to get agreement with a bunch of physicists, scientists, and et cetera that really have different ideas on how to go. And right now, they're still working, and it was recently reported in the newspaper, that Los Alamos is still working to try and get the contract. So is Savannah River. They've tried five times at Los Alamos and two times at Savannah River. It still hasn't been done.

Um — it just mainly takes a manager that's going to listen to the people that do the job on the floor and design the facilities that way, to where they're not so complex and difficult that you can do the job.

Where, right now, we have electricians … they've eliminated most of it as an example of the apprenticeship programs. You need an electrician that can do electrical work, not just change a light switch. You need electricians that don't just change a light bulb, and you need a plan for that. You do a little bit of all electrical work, and that way, also, they progress in pay and everything else over a four-year period, like a college would do. And they're rewarded in that way, as well. And — uh — it works … it works pretty well when you do it.

You gotta make sure that … and there's nothing wrong with farmers or coal miners or anybody else. They did a hell of a job, excuse the expression. Hoover Dam, you know. You have Empire State Buildings (sic). You go through all the large projects, they … they were there.

And I guess one of the best examples might be Henry Ford. Took a Ford that nobody could afford, and in turn, he finally made it for $800 on a production line, where the average man could get up to that criteria of life … of living. And Huffman, here in the city of Thornton — uh — came where the average houses were running $15 … 15,000. He got him down to $9,800. And when I got out of the military the same way, all kinds of GIs bought 'em because the first time the common guy could buy a home. Before that, most people could only finish eighth grade. After that, they had to go to work. Most people couldn't afford a home, and, in turn, he made it possible that we were through that. And now they call it the "Miracle City" because so many regular people

now can buy a home. But now, it's going the other way right now. But anyway, I'm sorry for getting off subject a little bit.

WHELAN: You brought up the family environment at Rocky Flats. Could you talk about that maybe a little?

FREIBERG: Yes. At Rocky Flats, most of us were going to Rocky Flats in a carpool. The reason the carpool was all dirt roads when we started. The wind was bad. It'd destroy a car in short order. So, we get together, four or five guys at least, buy an old car, and we'd pitch in — one guy drive one week, another guy drive another week. Pick up the riders in the morning, drive them out there, pick them up after work and come home. Rocky Flats, at that time, only had two parking lots: one at Building 11, which is an administration building, and one at Building 81, which was a production building. But, in turn, that they parked their cars there, and we take a bus or walk to the various buildings after that. But by doing that, we could afford it better, and we could save the cars and time and damage to the vehicles.

Uh — the other thing we did, on the family, is everybody got to know everybody. You couldn't talk about what you did, not even in the carpool. You couldn't say, "I did this; I did that." Each building was separated completely by what they did. 44 Building did certain things; 81 Building did certain things; 71 Building certain things. But you couldn't talk about that to anybody else, and they had them separated except for the people in security and health physics. And that was because, in case of emergency happened, what you would do is you'd be able to go to any of the buildings and be familiar with it.

The — um — the other thing, on … on the family, we had softball teams. We had bowling teams. We had every kind of team you can imagine. Golf. Uh — everything. And almost all of our outside activity was also within people from Rocky Flats or your community. There was an awful lot more with the communities and that included starting the cities — uh — whether it be volunteering for a fire department, volunteering for police department, volunteering to help build a garage, help … everybody … there wasn't any TV, and that's a big difference. No cell phones — big difference. And nobody had a lot of money. The average wage in Denver was less than a dollar an hour when Rocky Flats started, okay? That makes it pretty tight, even a home for $9,800. But they didn't have … so they … they joined in playing cards; playing games; doing activities, like golf, volleyball, bowling, et cetera. And everybody knew everybody at the plant. We were like family, and it wasn't, "So-and-so is better than so-and-so," because most of us didn't know what the other person was doing to begin with, what their background was, what any of that was. And it's pretty much stayed that way.

And there was an awful lot of GIs that just got out of Korea and … or involved with Korea. And, in turn, they were joined in, and they felt they … they could talk with the people that were out there because it was common language.

But the other thing was is it was — uh — camaraderie where we'd go fishing together, as an example. I … I went fishing with the same guys for 40, 50 years. And we'd go all over, even back to Minnesota … go fishing with some of the guys, where you'd go get kokanee salmon out of one place, and you do this and do that. But you were camping together, you were working together, and you did … but never talked work. And that's hard to do. Most of my relatives and everybody thought I was a bus driver, okay?

And that's the way it went. And we didn't mind, you know? And — uh — so a lot of that classification … and it stayed that way. I can't understand today, how open it is — uh — that's why Jack and I still have some

problems. Because when you start to talk about things, we're still pretty restrictive, just the way we were brought up. It's like the difference in culture … of kids, grownups, et cetera. I was … I was growing up during the Depression, so there was a lot more discipline, I'd say. Uh — you turn off all the lights. You go to bed in a cold room because there wasn't money to heat. Uh — you went through the war — the big war — a lot of the guys did the same way. Almost all the guys I worked with had gone through World War II, okay? You get a lot of camaraderie there. And — uh — it's just that the people worked together, and they were used to work. And now, I have trouble with my kids trying to get them to work enough, you know? And he can go to school, colleges — the women are outdoing the guys something fierce. And that's great. I just hope they don't overdo themselves to where they get all the work to do.

I see too much of that happening now, and that's off the title, I know. But — uh — the women are taking on a lot, even in politics and everything. And it … you know … all my … my wife raised 21 extra kids. That's part of the family. I was busy working all the time and gone. I had took a lot on an airplane. And, in turn, she raised children. But of all those 21 kids that she raised extra, plus two biological, we adopted a lot of them. I never asked for any money from anybody to raise them, so we had a pretty much open course there. And all of them made out well. And, in turn, the girls are much better educated than the guys because the guys all felt they had to go and get a job and get a car and get this and that. But I'm proud of the women today.

And we also brought women into the workplace at Rocky. They didn't really come in big time until Jack and I discussed at a … 1976 because we didn't have separate showers. We didn't have separate facilities. There wasn't facilities for a lot of them. Now, during World War II, they — the women — worked wherever the guys worked, on dirt floors or whatever. My mom worked on a dirt floor in the foundry. And God bless them — you know? — but they worked hard, and they … they did what was necessary. Today, I think — uh — we gotta get back to the similar work ethics, and … and do the job.

It's — uh — also debate … the nuclear industry paid pretty good. Uh — we and … the starting wage at Rocky Flats, when Rocky Flats opened in 1953, was a $1.37 an hour. In Denver, it was less than a dollar an hour, and so … it was better pay out there. And there was only about 500 operating personnel when we started. The rest were contractors, Austin Construction.

But — uh — the people worked together, and they lived together, and they enjoyed simple things in life. You knew your neighbors. How many people today know their neighbors by their first and last names? I don't think too many. And we got to go back to knowing the neighbors and helping the neighbors because everybody built their garages — or whatever we had to do — and you did it was the raw materials you could get. And it was just a different culture. And I know I'm the old culture. I'm 90 … 90 years old, and I know that that makes a difference, the way we were raised. But we were raised with a lot of discipline, and you've surely … you honored your parents, your grandparents, et cetera. And now, raising as many kids as my wife and I have, it's changed a lot. And I'd like to see it go to go back a little bit … for all industry, okay? I'm sorry. Go ahead.

WHELAN: No need to apologize. Uh — just to go back a little bit, how did you get started working at Rocky Flats?

FREIBERG: I was in the Air Force — uh — still. Uh — and I was … I was, at that time, I went from Korea … well, first off, I went to Lowry Air Force Base then … I was a radio operator when I started, and I went to an … AACS,

but — uh — I went to Lowry Air Force Base first, then I went to … from Lowry, I went to the Greenland … Korea … Korea first, then Greenland. Then, a guy by the name of General Lemay chewed my butt in Greenland, and I think I got I got stationed at Offutt Air Force Base, when I left Greenland after that. I think he had a part of it because he didn't like the way we were dressed.

But there was only seven of … seven of us up at the base when we started. There's a base called Thule, and that's what they were constructing. But we had a set of communications, so they sent seven of us up there. A woman behind every tree … no trees … nothing but 67 below, dark or light. And it was pretty miserable. No facilities for mess hall, no facilities for laundry, no facilities for movies, nothing. And we did a year and a half of that. And that's when … he was up there during that time, and he didn't like the way we were looking in fatigues that weren't quite proper, and so on and so forth.

But anyway, they built Thule. I came back to the States. I was stationed at Offutt Air Force Base in Sac headquarters and I … I decided to get out of the military and see what was out there. Well, one of the relatives … I … I got married when I came back. And one of the relatives of the wife said they were hire … they were going to hire or start hiring at Rocky Flats. I didn't know what Rocky Flats was. Said you might as well put in an application because I'd like to be where the wife was originally from. And so we did, and — uh — I got the job, and that was it. I didn't know what they were doing here or anything else, except it was going to be … the word was out it was going to be some type of nuclear facility to make weapons and the nuclear product, so … but I filled out an application, they hired me, I came to work, and that was it.

WHELAN: You started in 1953 and worked until 2011, 2012.

FREIBERG: I didn't what?

WHELAN: You worked in 1953, and then you were done in 2011, 2012 — correct?

FREIBERG: Oh — uh — the first work … no, the first work I did was I … I worked in as a radiation monitor and technician foreman and then a technical — uh — I worked in health physics for 23, 24, 25 years. Then, I was transferred to, as I mentioned, to — uh — or the full technical group. With them, from that full technical group, they — uh — put me on startup with facilities. **[34:49]** and through the fires and et cetera. And then after … well, I went through the … the earlier … when I went through, and I retired in '91 from Rockwell after I went through all the program management and all the other jobs. Uh — but that was it for Rocky.

Uh — other after … that it was mainly engineering firms — almost everyone you can mention — because DOE had all their contracts with different engineering firms. And when they hire consultants, it'd be through the engineering firms. There were only a few people … you have to go back in history a little bit.

Nobody knew nothing, basically, about nuclear. It sounds kind of bad, but we didn't know how to measure neutrons. We couldn't tell plutonium from uranium. People didn't know what plutonium was. It was a man-made — uh — product to begin with. But nobody had worked with it, so the instrumentation we got as an example, to measure an alpha particle, was a peewee that weighed 26 pounds. And all we were doing is measuring an electronic blip, okay? Wasn't specific. It'd measure any electronic blip, basically, that was radioactive.

And from that, we went to modern technology, and that was mainly in the technical area that I was working in, where we could tell the difference by the energy of each blip … what it was that was. That was for just the alpha particles. The gamma particles — we had some of the same problems. Criticality — people didn't know how to control the criticality. We ended up using products like ration rings that were full of boron. You couldn't get over two … two inches of liquid around plutonium because it would moderate the neutrons and cause the criticality. You had it … you had to keep it very tight and very close. Well, nobody had ever done it before. We were the first production area with the main product, what they call trigger. You can call it pit. You can call it all different … different things. But it was with the material itself, the enriched uranium, or the plutonium and et cetera that was used in the main warhead, okay? And from there, it was transferred to all the other 15 sites to where they added different things, okay?

But the nuclear material was mainly at Rocky Flats, and that had to be handled in a much different way. We couldn't read neutrons, so how do we know how much radiation people were getting? At first, we didn't. We used film, and that was it. Your TLDs, or your thermal … your … your film badges, as we call them later, were strictly a piece of film. And you'd say … check it and see how many blips were on it. But you didn't know how … how … how energetic they were. Were they … you know, what was their energy?

I was the first guy to be given a job of putting together a … a isotopic analyzer. It was put together with another guy named Kurtner, and he went off on another job. But we did that in … in … when I was a technician, where we actually could measure plutonium, uranium, neptunium — whatever you want to say — by the energy that is emitted from that particular type of material. On plutonium, it's a 5.15 mhep. On enriched, uranium it's a 4.76 mhep. But there's different energies for each one of them. And before that, we could smear or check whatever we wanted.

We didn't know if it was plutonium, regular uranium out of the ground, or enriched uranium, or depleted uranium or any of it, until about the '61, '62 area — 1960, '61, '62. We already been working at Rocky quite a while. The same as neutrons. We couldn't measure neutrons till mid-60s, okay? Couldn't even measure 'em because we found out we could measure them if we slowed them down. So, we come up with a …a sphere so … a sphere that was made out of poly … polyurethane and things of that nature. Any hydrogenious substance will slow a neutron down. So, in turn, we've made it to where we slowed the neutrons down. This was technical people in health physics primarily.

And then I was, like myself in my group, would go in the field and keep working with the field. We would know that if we put a kg of material here, and here was the instrument … how much measurement we would get — okay? — by a known amount of material and what the instrument would read. And we would take that, and I would put enough shielding in there so we could get the exposure to the people down to below that 500 per year. And that was by slowing the neutrons down or cutting them out. And it worked very well. So, we did, instead of — uh — combustible materials, we went to water walls, enclosed in the glove boxes, enclosed in the rooms, and et cetera. And it worked very good.

But you got to remember, we were the first main production facility that dealt with that kind of material. Hanford was making the plutonium. Savannah River was making the plutonium in reactor cells. But then they would se … they would ship it to Rocky Flats as plutonium nitrate, and that would come to Rocky Flats in 4- to 6-inch containers, 6 feet high — mainly to keep it so it wouldn't go critical, as long as the neutrons can get out.

And … or … what they called the "little bombs," they put the nitrate into a little stainless steel sphere and send it to us.

The other way the uranium came was in blocks of uranium. It actually came in chunks, the uranium either depleted or enriched. And … but we were getting the mass … massive amounts of … of material. In fact, I think you heard the number 8 ton of material in the stacker-retriever vault in 71 … 371, when we collected material at Rocky Flats. Well, it only takes … it don't take much plutonium under the right circumstances to go critical. And if you go critical, you get a lot of radiation or a minor explosion, and it'll kill you.

But we … we were dealing with that all the time, and that's why our people — our technical people as well as our scientific people — were working with it with the electronics. And a lot of the electronics —really came out of Korea in World War II — that we could incorporate into new instrumentation to where we could do things of this nature. Before, it just wasn't there. It was like the typewriter versus the computer, you know? A whole different world. But most of those things were made and invented at Rocky.

Uh — Los Alamos did a lot of work, don't get me wrong on that. But they only dealt with very small quantities. Los Alamos as we're … Hiroshima and Nagasaki were made one at a time, okay? Well, we started out like one at a time, but later we made 70,000 of them. That's a lot. But we did it mainly to get rid of the Cold War and have the deterrent just stand off Russia, China, Iran, whatever it was … to make sure that we could keep our population safe, the United States, and by deterrent … Freedom don't come free. And I I'm convinced of that because of what's happening now is a simple example. But Freedom don't come free, and the way we won the Cold War was being able to outproduce the deterrence that the other countries were. And that's when the Cold War supposedly ended, when the wall came down. But an awful lot of the workers think we're still back in a Cold War right now, and we got to be careful we don't stay in it, ok?

WHELAN: Can you describe how an ordinary day would go for you while working at the plant? And …

FREIBERG: How an ordinary day went for me? Which job? (Laughs.) Uh — my ordinary day in the first … first jobs — say, the … in the health physics first 10 years — was normal 8-hour shifts, I think. We'd go in. You check in through the guard shack. You — uh — when you checked in, you had to have a badge … you got to have a number. And, in turn, then we change badge again when we went into the hot areas. It was a separate cue clearance, so to speak. You could have people working in the cold areas but not in hot areas. Anyway, we go into the hot areas, you change cup … you change all your clothes. And you go into the hot areas, and then you come out for a break or lunch. You'd get monitored, change clothes again, and — uh — eat lunch … in the building, and then go back to work. And then at four o'clock or whenever, take … everybody leave, take … get rid of those clothes, take a shower, put on your regular civilian clothes out of your locker, went through like an airlock area, and you get into the carpool and go home. But most of that was 8-hour days except overtime when we needed to.

When the incidents came along, we worked whatever hours were necessary. And they were pretty long hours once in a while. Uh — some of us even slept at the plant a couple times because of — uh — the incidents. Uh — The … after that, I when I went into more of a technical area. Uh — my hours went from, probably, eight to — uh — more like 11, 12. And it was on my own wishes. It wasn't forced. But — uh — moreover … but you get so interested when you find, as an example, when we were working on the Ludlum instrument for Alpha, you

went from 26 pounds that the guys had to carry around all the … every … all their shift. You were in a respirator all the time … in the early days. It wasn't very comfortable. And, in turn — uh — you were so interested in putting something new together that would work, you'd work the extra hours. And that was a lot of people.

Uh — and (inaudible) was pretty damn good. We had a lot of protesters. And the protesters, more or less, made us more mad than anything else. Uh — and the reason being a lot of them were, like I say, ex-GI's. An awful lot. And the patriotism out there was unreal. You can ask today, in the meetings we had yesterday, every … there wasn't one of the previous workers there that said anything but good about Rocky Flats. Now, why? It's like to me, a military man. I had really three careers, maybe even more. The mil … I joined the military when I was 17, okay? Went in, I … after military, I went to Rocky Flats. Rocky Flats, during the same time, I … I went to start a fire department and et cetera in the city of Thornton and helped the city of Thornton. And then I came back and … still do Rocky Flats … still do the fire departments … still do the military.

I put a total of 34 years in the military. After I left the regular military, I joined the Air Guard, and I was called back to active duty several times. And, right now, a lot of those guys … but a lot of the people at Rocky Flats were involved like that. They were involved with — uh — the National Guard, the — uh — all of the various Kiwanis, — uh — Eagles, — uh, uh — (inaudible), or the American Legion, the VFW, et cetera. They were all very active in their … their little areas around the house. And they were active because there wasn't a TV, like I said. '52 is the first TV that came — channel 2 in Denver. It was mainly baseball, news … and after that, it was kind of slow coming in. And computers didn't really come in until really … big time, mid-70s … big time. And when you started looking at all that — and the cell phones damn sure didn't because you had party lines. When I moved into Thornton, it was party lines — 10 on the line. And when you think of that, we were busy doing other things. And the kids were busy doing other things … on the streets, playing in the play yards, and things of this nature. But the … the things that … that happen with the people on the … on the normal day and things is you'd go home and just join in with whatever is happening, and do it that way.

When I went into becoming the head guy in the technical group, my days went more in like 12 hours. It's because we were working — number one — that that was like in '75. I was assigned to the 371, probably at least half of my time, building a new plutonium facility that was a heck of a design facility. I mean — it was it was 215 million dollars. It was concrete like you can't believe. It was technical like you can't believe. And instead of computers, we had to use sequence panels. I had rooms this big — 11 rooms in 371 — this bigger … bigger, full sequence panels, which now I could do with a couple computers, okay? And they all had to be to the right place, sending signals to the right thing — to open a valve, to close a valve to open, whatever — and a lot of piping. Uh — you can't believe the number of miles of piping — 678 miles of electrical piping, okay? And I … the numbers are still ringing my head, but it took a long time. It took a lot of work.

We were gone every week to an engineering firm on the west coast — 12 of us. We use 12 people as a team to mainly design and put together all of the design criteria and then the specifics for Title I, Title II, and then for construction. And we followed it through all the way. And that's what's not happening today. But they need to get … to keep people together … keep them together and follow it through. And the same people that are doing that operate it. But, anyway, during that time, I was on an airplane every week. And — uh — if this is Tuesday, it must be LA or whatever. And a lot of publicity — a lot of everything — because we were building something brand new for all of the nuclear industry. Because we couldn't keep going like we were. We were

overexposing the people. Uh — we were having too many incidents, too many fires, too many everything. We worked on two facilities: TA-55 in Los Alamos, which was mainly R&D — research and development. And then, building 371, 374 at Rocky. Uh — Rocky was the production facility. And we put it together and through that period — through 1980 — it was good 12-hour days.

And then after that, I went into projects, and it still ended up that way. And you might call it a workaholic or so, but I enjoyed … I've always enjoyed … I … I started on a pig farm. I didn't mind that work, and that was pretty bad work. But if you enjoy your work … and most the people at Rocky enjoyed their work and the people. But the work — if you enjoy it, you can put in the hours. It hurt the family some, and that's why my wife kept getting more and more kids. But it worked out. But a lot of hours in those days. And I still put in a lot of hours. I'm still active a second … in the city — uh — and with DOE and on the 7,000 acres that we got out there. Uh — you can ask John or you can ask Andy or any of those people. And — uh — Jack's … Jack's tapering off and all the (inaudible) his wife. Well, he's being smarter than I am, I think. He's tapering off more. It's … he's 80, 81 now, I think. And — uh — we're the only two left that put in a lot of hours, I think — uh — for … for that.

But there isn't — uh — I'd say get as much as you can. And Jack and I can give other names if you need them because there's some people, in health physics as an example, the most knowledgeable man just died (inaudible). But his books are very interesting. Uh — Clayton Loggerquist is still around. Jerry Haynes is still around. There's some of them still around. Uh — not as … not as involved as Jack or I was maybe. But — uh — Jack … I'm getting 90 is kind of … lit … you know, you start getting a little … something's got to happen sooner or later. I don't want to live to 110. Uh — but then something's going to go probably. And there's very few guys left with the knowledge, and that knowledge even needs to be passed on to the other sites still. And — uh — the data is there, but it's not being passed on.

Uh — you asked me what my work was like. I still enjoy it. Still do a lot of it. Uh — especially at the city now. I … I mentioned I helped start Thornton. Now they named the museum after me, and now they asked me to put the museum together, okay? That's a lot of work. Uh — and all the history of the city of Thornton. Because a lot of cities never put their history together. And the way cities start are the same way you start a project, basically. You got to put it all together, and get it all together. And it's amazing how much of that is lost, and why we got some of the problems in the big cities we got today. Uh — and they're … they're big problems today. That's enough for that, okay? Any others?

WHELAN: Uh — could you talk a little bit about how you got started with the Rocky Flats Cold War Museum?

FREIBERG: With the Cold War Museum? Um — I was still working consulting work. I've been in there, now, 20 years or more, I guess. I was doing a lot of consulting work. And I was asked to come in by — uh, uh — some of the people that aren't there anymore. I was very active in the health physics society. And — uh — a guy named — uh — Jacobs was the first person in charge of the health physics aspect of the state. And then it went to … now, it's … it was Hallah Hazel. Now, we got another one. But Carl is also on the museum … board that I work on. He was the state representative for Colorado for Rocky Flats, okay? They wanted somebody on … on the board that was more familiar with the total history from day one, and I was the oldest one with day one 'cuz there was … we … we … two … three of us received the first shipment of radioactive enriched uranium and depleted uranium on-site. And when we first heard them first clicks, we thought we had to roll by the … you

know? And, in turn, it was exciting the whole time. But — uh — they asked me to come … the board asked me to come in. There were people on the board from the … the city of — uh — Arvada. And there were more people on the board … some of the … Phil Saba (sp?) is still on the homesteaders, and he's got a lot of information. But the — uh — they asked me to come in, so I came in. And after that — uh — Jack came in and some of the other fellas. But right now, there's about five people on the board … Rod … Rod is on … we have about five people that know Rocky Flats … on the board. But the problem is the homesteaders are all … they're old. Uh — I started out in the business pretty young.

Uh — after I got out of the military, I went right into the business. And — uh — they were mainly hiring, I think, at that time — uh — people that were more … say, with Ph.Ds the scientists. And they put 'em in charm school. They sent them down to Los Alamos. And they put them with the physi … physicists and scientists, and they learned the charm school. But that didn't do production. And here on — like I say — Henry Ford learned that.

You know, there's a big difference between … we made one at a time basically, when we started. It was a line that was as long as that table, maybe another 10 feet. A box — a glove box. And, in turn, from that, we took a hunk of plutonium, melted it, put it into a ... a form, and took that form, and hand sanded it down to the shape and exact thing we wanted, and … all by hand, okay? You can't make a lot that way, and especially when you try and get it out of the glove box and use it someplace where you can put that hunk of plutonium — or whatever you're working with — into a … a unit that is a whole weapon, like a fat man or a little boy. Well, fat man is bigger around than this, okay? And, in turn, from me to you, at least … and all that had to be done by hand.

So, what we were looking at is … and the … Washington was looking at … They knew that Germany had the data originally, and Japan got the results of it. But it shortened the war by far and saved a lot of lives. But the area out … outside of that, we knew that Russia was doing … that … working on it in … and China. And, in turn, when Russia sent Sputnik around the Earth, that kind of enlightened a lot of people's eyes. And now, it's really enlightening. I don't know how many we got up there now, but … hundreds of thousands. But the … the work then started of … we need more, we need to be able to displace them in different locations in the world and be able to have the … the … the deterrent that nobody wants to touch us because we can wipe 'em out. And that was the safety factor they put in.

And a good example of it was in 1961. I was called back to active duty. Uh — when the Berlin — uh — airlifts … well, it was finishing. But after that, when Khrushchev was trying to bring off ballistic missiles to Cuba, Kennedy says "stop or else" — on that line. And they stopped on that line, and it was because of the warheads we had. And we went into a lot of production then, to make sure we had enough deterrence that they'd never tried again. And — uh — it really … Kim's played some games and other people, but, at the same time, there hasn't been a real try except now. One of the guys over there is trying to scare us a little bit. Uh — and I think his … his bluff is going to be called. And it's because we now have the deterrence and better than theirs probably. And advances have been made. And the reason you might ask, "Why 70,000?" There isn't near 70,000 ready to go — uh — on ea … any of the sites. It's just that you have to keep changing also the design of the weapon with the design of the delivery systems. And the delivery systems now are one hell of a lot different than what they were in the '50s, okay? Uh — but that's about it.

But it's … it — uh — it just got me … anything too, I was always curious, you know? How do you make things better? How do you … how do you make some things work, like an engine or anything? And it was just a curiosity of mine. And to build something is a hell of a good feeling, whether it's a little hospital or whether it's a nuclear facility or a reactor or whatever or just … whatever.

And — uh — the people I think get Rocky because they had to make a certain weapon production by direction of Washington, even when we ran into troubles — the fires. Within days and months, we were back in production. And if you look at the '69 fire, we went back in production in less than two months. It wiped out our foundries, a whole bunch of 76 Building, not 77 or 707. But I put a project together where we added two … two complete modules to 707 Building: One was the foundry module and one was the storage module … and other equipment. But within a very short time, we went back into operation. And it was for the guys just went in there and did it.

And — uh — you talk about, "Well, where did you learn all your lessons from?" Most of them: on-the-job training. It was just doing the job and confining the materials to whatever they — you know? — wherever you wanted to keep them. A downdraft table. We start working with plutonium out in the open on a downdraft table, where we take many CFMs of air, pull it over this table, pull a little away from the table. It's be just like a vacuum, okay? We could actually work with that out in the open with a respirator. Uh — could never do that earlier. We did a lot of that. The way you put your things together, we did a lot of that. Uh — keeping everything on safe configuration. When you got that many parts in conveyer lines and et cetera, and you have to have a minimum of two-foot centers, okay? You can't have any liquid over two inches, on and on and on. There's so many parameters that you got to work around that you have to keep coming up with new ideas if you're going to put out a lot of product.

Well, we went from that line I mentioned — another 10 feet — to a building that was about — uh — 300,000 square feet, okay? And the foundry alone was an area of about … at least 12 of these rooms, okay? And when you start in … the machining area was so big and … we never machined anything until that fire in '57. You couldn't. The pyrophoric of the material was so great, as soon as you start trying to machine it … a similar deal might be magnesium. Well, plutonium's more pyrophoric. And, in turn, as soon as you start machining plutonium, you got a fire, okay? Uh — you had to work around that. We never started machining any plutonium until 1957.

And — uh — that this was the chips from some of that that started the 180 fire in 1957. And — uh — we could put out a small chip fire, with … oxide or … anyway … different chemicals or extinguishers. But we were never allowed to use water because if you put water on the plutonium, you can have a criticality. And the criticality can do what they did at Chernobyl, okay? And we didn't want that. The other thing on water that we did is, instead of the two inches that we had to maintain … two inches is hard to maintain, wherever you're in a building or anything else. And try and maintain that you're never going to get two more than two inches of water on this floor, especially if it's coming out of a glove box. Well, we dumped it on the floor at the beginning. There was a two-inch lip in the glove boxes, and then on the rooms, we had two-inch lip. But, for one way or another, we did it; we never had it.

The ration rings came in later, like I say, to prevent 'em. Ration rings were little things, $1.75 each. We used millions of them, had to change them completely out every year.

Uh — but all that was reinventing the wheel as we went. Right now, I think most of you know, we have more than one nuclear weapon on a missile, okay? That was done by a lot of trial and error. The one weapon that I worked on quite a bit was designed basically to make a new Panama Canal — work great. Nobody hardly knows about it. We've made several appeared they were shot here at Parachute to try fracking. There was three of them shot out there — okay? — for fracking. Once one sealed it with glass, and the other one worked there but not as good as we like them and what we're doing now.

But there was a lot of tests done. In fact, as I mentioned, I think one time earlier 2,034 total between China, the Soviet Union, and us. And how many have you seen it? I've seen several, okay? And then they're at the test site. But nobody even knows where they were, or what they were, or how bad they were. You might have seen them in the movie — a big boom, you know? But the only ones you really hear about is the ones that killed a lot of people. And they're not made for that necessarily right now. But they're … it's … it's just a deterrent to make sure … Russia should always be afraid of us. Us afraid of them … China, the same way … Iran, the same way … Korea, North Korea, the same way. Uh — and the only way you'll do it is them making sure that we don't have the fear of them being over to take us. And believe me, if you've been in that situation, you'll … you'll want that deterrent.

Uh — one of the reactions I always get from for being in the Air Force was that — uh — we weren't too good at hitting the targets when they named … when they hit Normandy. And when they hit — uh — Italy. That we even hit some of our own troops, okay? Well, with a nuclear weapon, if you keep it downsized, you can make it pretty specific.

But there was 128,000 people killed at Hiroshima and about the same a little more at Nagasaki. And you look at that number now versus the virus for biological or chemical warfare. There's a lot there's … a lot of other warfares that I feel just as … as much of a deterrent as what the nuclear is. And, in turn, I hope we never have to use the nuclear. Am I afraid of it? Not really, I don't think. Because I hope to the guy upstairs that would be accurate enough and the people have enough sense not to just let it go all over. And let go what we all have. But each country now is restricted also by treaties, by contracts, that they only have so many in the field ready to go. And — uh — I hope we never have to use them. And it'll only be by some idiot that would try to think about it.

But — uh — I'd make more today. Well, we gotta keep making more until we eliminate. And I feel the nuclear weapons will be eliminated in another 20 years. Um — we'd be done by lasers, things of that nature. Uh — right now, the next facility I was supposed to build … my … that was going under me was a laser isotopic-separation facility at Rocky, attached to 371 — where, rather than all the chemical process, we would do it with lasers and actually separate the isotopes and put this uranium here, this uranium here, and so on, and so forth. With lasers. That facility was — uh — in concept. I got pictures of it. It'd take up the same size as 371 … attached to 371 building. But it was canceled.

And but … there's doing more and more work with lasers and accumulators and everything else. But even with, like, anything we do today — with electric cars, whatever — I don't know we're going to get all electricity, but the technical people are coming up with more and more ideas on accumulators, on how we'll accumulate it. And it won't … and the lithium battery problems, and so on, and so forth. But there's people that are always working on that all the time. And when I look at what happened during my lifetime, there wasn't hardly any

airplanes when I was a kid. There wasn't that … one car per family at the most at that … after Henry Ford came out with a Model A. Nobody owned the home hardly. No computers, no cell phones, no nothing, you know? When you look at what's been done in those last 90 years, it's unreal.

And I think in the next 90, we're going to see something very similar and including outer space. And there might be a couple ladies and a couple guys sitting on Mars, talking about us later on, I don't know. But that's coming.

So … I'm sorry … I'm not … I'm not sorry, really. Uh — the trouble, Jack and I we could talk all day. I think and that's … that's bad, I know. But I … we're hoping that some of the information, specifically if people are seeing a problem in some areas — like, right now, we can't get going the facilities that we need to get going because of politics. And I hope the politicians, if nothing else, to see some of this that they learn if you get enough small guys together, you don't need 50 or 435 congressmen to make one decision. But if you can get the right guys together, they can make a decision. I mentioned one of Los Alamos's problems, and I'll state it: They have 50 people in the meeting to make a decision. You don't make a decision like that with 50 people in a meeting. You have to have the right people in there with the desire and the want and the need in their own bodies to make a decision and spend the money where it should be spent, instead of just wasting it on something else.

Um — you see so much. I travel all over the world. What I see all over the world, you don't like, and I don't want for America. The people that are now fighting the Russians got refrigerators this big. Most of their homes been bombed out, and they're still fighting. Now, why they … some of them have seen how we live, and I want to maintain that.

And whatever information us old guys can pass on to the younger generations of what we need … we need the … the isotopic-separation facility. We need good stories. We need to know how to get rid of all the material that is out there now.

I mentioned we're putting, I think … maybe not here but … americium we took out of plutonium at Rocky Flats in 71 Building, primarily. And why? It was our main gamma emitter … 60 KED gamma emitter that was giving us a lot of the high gamma. Well, we took it out, and where did they put it? In smoke detectors. And where are your smoke detectors? Your smoke detectors are in your homes. And what do we do with them? We throw them into the garbage, in the waste. Name me anybody that's putting them in some safe place. There's americium in every one of those smoke detectors. Uh — there's so much that we still do that we shouldn't do. The waste is a real problem with the nuclear industry. Carlsbad is a good place to put it now — their waste facility — uh — down in Carlsbad. Hanford's going to be a hell of a job. But we still have to produce the nuclear weapons, as long as another country is doing it. Well, I don't know. Another question.

WHELAN: I just have one last question, to wrap up our interview. How was the tour yesterday? How did you like being there?

FREIBERG: I mentioned to John, I … I've known a lot of these people for a long time. Uh — it was the best tour I've been on. I … I toured myself, you know, and done a lot of things, and know that facility from day one. And, like I say, we were always in concrete walls, so I never got to see the mountains until I built Building 130. Uh — and then I put my office in top floor, on second floor, with the window towards the mountains because you can't believe how much of you out a window means when you're in concrete offices for 50 some years, okay?

And my … my deal at Rocky was … the tour was excellent yesterday. And, in turn, the way John and the women handled it, with the with the video of the … the pictures that they showed … and how he showed where we were on the diagram because if you go out there now, even myself.

I remember where the tower was, and I remember I had … I had an office in 123 Building, too, where he pointed out … and 81 Building and different … but they were always in concrete, okay? And just to be able to see that fresh air with the elk and the grass — uh — there's a hell of an eye open. And I'd like to have more people be able to see it, and us not have to keep building these concrete facilities that we build this stuff with, for either chemical or biological or nuclear.

And as small as this planet is anymore, and the way we're so international, with all the data that's transmitted … What's transmitted now, even in the nuclear area, scares me. When they start seeing what we have, what we don't have in the papers, I don't buy that. I was brought up in a more confined security area. We couldn't mention any of the things that are being mentioned now, and nobody knew that Rocky Flats what we did forever. Uh — they got pretty good ideas now. And with all the pictures that are taken and things of this nature, and the information being transferred through the U.N., through all of the international professional societies that we do — uh — a lot of that data's out.

And now you're going to see some … well, in fact, some of our people … one of the project managers that worked for me just finished building a submarine base in England. Well, he knows everything that's in that submarine base, and he's not being looked at too much anymore.

But — uh — same as Jack and I. Whenever Jack and I have to go back on old data, we go through a re-confirmation of Q clearance. But not just Q clearance — the sigma's attached to it. And, in turn, so that we don't spill out anything that …. and I look at my log books and stuff and — nice print and everything — and I'll get sloppier as I get older, but … but when you look at that, we were so much more secure, I feel, in the olden days. Maybe it was because it was World War II, Korea, Vietnam, and all the rest of them. Uh — but we don't need any more of them. Uh — and I don't want any more of them like the World Trade Towers, you know? Uh — things of that nature.

And the military today gets more praise. I put 34 years total with the air guard and the regulars and traveled all over the world with that, as well. In fact, one of the bases we went to was Merzifon, and it was right across from … right … Ukraine …. of the Black Sea. We've put in an emergency base over there, where we'd go over there and put in back 12 barriers and stuff for our fighters on a little landing strip that wasn't meant to do any of that … in a couple, three, four days. And, in turn, it was for pre-things that they're even doing now today, where they can still do that. The … the guard is being used so much now, and the reserves are being so much. All the guys that were in the guard now that — uh — are the pilots … the pilots spend three months a year in the regulars. All of the prime beef people — the people that do the engineering and putting up the bases and things — three months a year in the regulars. The … you know, it's so, so much because we're short on military in so many areas still and — uh.

So … I … I had a good time on the tour. I told John that on the way back, and I told Andy that. Uh — the — uh — thing we've dropped the ball on, I think a little bit, is getting some of this history. A good example … God bless Scott, and Scott did a good job, I think overall. He was at Pinellas before that — uh — shutting it down.

He was the manager before Andy. And the next manager was the lady, and I found out I was working with her [inaudible]. She didn't know it, but she was a … an engineer that was doing the planning of what we do in the field. And I was the guy that went out in the field and did it. And it was like setting up a base for real quick, putting up a — I'll say — anywhere from 1,000 to 1,500 soldiers and then the landing strip and all of the facilities for fuel refueling and stuff. And she was doing the planning, and I was doing the executing. And she didn't know it until I recognized her picture in one of the documents that we had off the base. But, no, I think the tour is good. I think there should be more, not that tour necessarily.

Uh — the museum actually did meetings with high school, all the colleges all over Denver and in other areas. And what we did is briefed on what Rocky did, basically, and briefed on "What is nuclear? What is the war? What is … what do … what are weapons?" The women again — the seniors in high school — ask more questions than I could even ever imagine. Uh — at all the high schools around here. School of Mines, Denver University, Colorado University, up in in Fort Collins — all of them want to know more about what … they now … Rocky's being lost. You ask, how many people know Rocky Flats now? Very few in comparison to what it was.

And the data and the knowledge that was learned there is lost in a bunch of books and DOE. And I got enough at home because I keep giving them to other people. Now, there was so much data available what was learned at Rocky, and not really … we passed on — them three old guys — we spent eight years doing that passing on to all the other sites. And had quite a bit of say when … when that was happening.

But as new things come in and no money comes in for new facilities, the old facilities won't hack it. Uh — you can't be putting out product that is number one today with 10-year, 20-year-old facilities. TA-55 was built in 1970 … it broke ground in '74 and was built the same time I built 371. And it's old, okay? We need new … at least one facility. And then what do we … we need a facility to be able to handle all the stuff that's sitting out there because every bit of plutonium that's sitting out there, waiting to be reprocessed, is building in more and more americium and other byproducts. And it gets hotter and hotter and hotter every day. I mentioned on one of these tours, a three-star general talked to me, gave me his card, and was going to have people … he had a lieutenant … he had a full kernel and a captain get with me later. But then they changed politics and we … and it went away. But it was to do something about that.

And that's why I still like DOE or some of the people that are still around to get it. Now, I talk pretty bluntly to people in Washington. In fact, one of my favorite pictures is Pat Schroeder. I'm showing her around the facility in 371, but my fingers pointing right at her nose. And the reason I say that is she was very anti-Rocky. But all the credit for the arsenal and stuff of that nature is going to Pat Schroeder, and there's this much … one line — and I mentioned it to Andy — there's one line for the workers that did the work. That's wrong. The workers that did the work and put out the product should get credit, not just politicians, not just some other advertisement. And that's one … one of the things that happens if you don't give the people that actually do the work recognition, some credit, and where they can feel proud that they worked at Rocky Flats. I've gotten more "atta-boys" for being in the military in the last five, ten years that I ever got during all the previous years. And I was in from 1940 … 1949 to 1982, okay?

And, in turn, it was them "baby killers" that sat on and on … and they still feel that way about the nuke facilities. They still got protesters, and most of them can be put to bed very easily, if they get the right people to talk to them or show it to them. The communication on what actually Rocky was and how good it did and

what we did for the Cold War. The Cold War wouldn't have ended — uh — you … you got to remember that Russia was making weapons the same as us and Seoul … China. China's were not near as good on the yield, and they were dirtier than the hell. You could actually measure it here when they shot them off. But, in turn, there was too much anti- done.

I think there should be more technical data available to the outside world of what we did do. If you look at the electronic equipment and all of your little mini-things that go into your new electric cars and et cetera — uh — it's amazing that … a hell of a lot of that was done because of the nuclear industry, NASA, et cetera. And it amazes me today we're going as far as we are, not NASA. And now we've got some civilian people doing it, and that needs to be done more — more civilian. If you do the work like civilians do it, they're working for a profit. They're working for — uh — to make good because if they fail, they're out of business. And we need more of that.

The … the projects was the best example. When I could bring a helicopter in, why couldn't they? I saved two-and-a-half weeks of work by bringing one helicopter in one day, okay? That's why that 37% under budget and two years ahead of schedule. You can do that with design build. You don't need … what does Amazon do? You see how big their facilities are right near us? You know how long it takes them to build that facility? One year. Why? I got a bunch of kids now smarter than me and making more money than I probably made that are … are doing that now. And they just go out, get all the permits and everything ahead of time, put up the structural steel and structural cement, and — boom — it's done, ready to go. And when they open that door, it's ready to go.

We need more civilian input and less government. And I'm just saying that as a citizen now because, right now, we got … if you look at federal, state, county, cities, everything, there's more people working for the government and the cities and things like that than there are putting out the products. And it's more … more … and once we quit making products or putting up missiles — uh — we'll be beat by somebody, like socialism or … or China or whatever … or even Iran or Russia. Uh — this is politics, and I know I shouldn't be mentioning it. But it comes into play. It really does.

And I think more of this can help that. Uh — everybody that worked at Rocky Flats felt safe. You can go through the entire crowd — I don't care how many people you pick — and you'll find 98% will go, "Rocky Flats was a good, safe place to work." They felt proud, and they felt they did a good job. But then when you go out again, and you don't see no credit to those people, "baby killers" — you know — "they're making weapons that are going to just kill babies." That's not the way to go. You need some positive media that says they're doing a good job. You might not know it, but they also made the shielding — okay? — for weapons, like your tanks and things of this nature that help protect our soldiers. They made stuff that would penetrate some of their deterrents — okay? — whether it be a tank or whatever it might be. And if you look at what right now the Ukraine done with very few people in comparison, and they are holding their own, which is some of our weapons. Uh — it's … they're doing a good job, not only the people but the weaponry that we're helping them with.

And I think the people still goes back to the main thing. You got to have the drive and the people that want to work want to make things work, and we can do one hell of a lot — and we need to. The floods that we just went through — unreal. Can you imagine going back to your house, and there's nothing there? I went through

a flood here — cost me $250,000. I never thought I'd get a flood, and I'd lived near the little Thompson River. All the sudden a flood came through. I didn't get any help from the government to speak of. I got $4,000 from FEMA, okay? The people that helped me was the churches, the Kiwanas, the VFWs, the people in the area — that's who helped me clean up the water, took all the mud out of the house … the downstairs, took all that out, and did it on their own. I came back … I evacuated and came back to my house, and here was 25 people from the Mormon church cleaning up my house already. And that was the day … the next day. And then, the Catholic Church came in and the great Billy Graham's people — they come in from all over. I didn't see the help from the government, and I don't know for what we're going to see now. There's so much bureaucracy that we got to do more on our own. I … I'm sorry that … I'm sorry for because I didn't want to get into any politics but it ends up … all of us guys that worked so hard, and we did to make to … make it … the country that it is and to make it as good as it is for all of our people and our kids, I don't like the adverse all the time and the drugs and things of that nature. Seeing too much of it.

I — uh — started the ambulance service in Thornton — 28 years as a volunteer, I worked at. And I seen so many kids die of the drugs and so many people die of not having hospitals out there when we started and things of that nature. We need to do more for infrastructure here and things of that nature. And if we need a facility, we should build it. We're the best builders in the world. Rome was pretty good. Uh — but you notice Romes are still there. Why aren't ours? We build and tear down. We're building gets blowed down. And all we do is just go around in a circle. They built … 2,000 years later, the place is still there. Uh — maybe they're smarter. I don't know. Okay.

Thank you all very much, making it easy. I don't know if you've got any questions on any of the others. I'd like to see more detail in design criteria documented in incidents that they keep downing Rocky Ford of what actually happened in the contamination on the land.

Uh — how bonuses made some decisions that it shouldn't have made. Too many bonuses in the government. On things … nobody in Rockwell or Dow ever got a bonus to speak of … to speak of. The high … I got one bonus all those years — $1,500. Nobody else in Dow or Rockwell. Later, when they came in, they get rid of that place — all kinds of big bonuses. The bonus that Dow got terminated over, Dow wanted to give each employee 300 and some dollars for being there … to 15 years or so that they were there. Dow … Dow… DOE didn't want it, okay? So, they said no because the other plants might do it. And the other companies wanted more of that bonus. Well, you got to give it to the people that do the work, I still feel. And you let them know. And they'll do the work, and they'll do it well. And that's the American model, I guess.

Uh — we got a hell of a lot of smart, young people and good working people. And I hate to say it, but I think the guys got to keep catching up with the girls now because the girls are going bang … bang … bus … gangbusters, you know? More doctors, more lawyers, more everything. And I got … we got to get our kids back in college — the boys, okay? Enough.

WHELAN: Thank you, Ken.

FREIBERG: You're welcome.

WHELAN: Thank you for talking with us today, and thank you for your work at Rocky Flats.

FREIBERG: Yeah.

WHELAN: That will conclude our interview.

FREIBERG: Oh, yeah.