Oral History Project
Philip Leahy Speech
GJPO 50th Anniversary, 1993

Lecture Host: Pleased to have the sixth distinguished lecturer in the program supporting research and development, 50-year anniversary celebration to give us a small talk today. And then I'll let our manager, Jim Zelepy [?], introduce our distinguished lecturer. Thank you.

Jim: Thank you. I'll read a few words here about a little bit of the history of Mr. Leahy. During the latter part of 1942, the Corps of Engineers sent geologists and engineers out to this part of Colorado to scout for uranium tailings as a possible source of uranium oxide. A few months later, in March of 1943, the Corps sent a second lieutenant to Grand Junction to be in charge of the Colorado area office. He had a twofold task. First, he was assigned to design, construct, and operate three plants to acid bleach 3 million tons of vanadium tailings to recover the uranium oxide. The second task was to acquire additional land to begin the program of uranium procurement for the Manhattan Project. On August 14th, 1943, this lieutenant's effort for the war department acquired a 55.7 acre tract — the present day site of the Department of Energy's Grand Junction Projects Office. The owner, L.H. Hall, received a total sum of $10,500 for this property, which, according to the Dean in the Mesa County Courthouse was to be used for "Project X."

The lieutenant we're talking about is Mr. Philip Leahy. He was also the first manager of the AEC's Grand Junction office. Phil is with us today to kick off the 50th anniversary of the project's office and is going to tell us of some of his experiences here. I'd like to welcome Mr. Leahy. It's been a while since he's been here. I'd like to congratulate him. [applause] I'd also like to introduce his wife, Vera. [applause] We're happy to have you here, and I understand you went up to INEL, which is where I came from recently.

Leahy: Right.

Jim: So, we have paths that have crossed. Welcome back, and please tell us all— [coughing] super-secret project.

Leahy: Well, thank you. I don't know. What I thought I would do is, what I did, I guess, five years ago, when they had a reunion and we held it over in the hotel somewhere in Grand Junction here. And basically what I did was just outline how come I ever got here and what did we try to do, how did we do it, and what didn't we do. Jim has already told you I was a second lieutenant in the Engineer Corps. I'd been hired, or commissioned. I was in charge of construction of a bomber base, a dispersed bomber base, in Syracuse, New York, when I received offers from the Coast

Guard and Navy, the Engineer Corps, and the Air Force to be commissioned as an engineer officer, and some of them offered pretty good ratings. But, after thinking it over, I decided to go with the Manhattan District. I knew what the name of it was because it happened that the man who was then the engineer— engineer officer in charge, who was a Army man, who was Colonel Jim Marshall — James Marshall — who— he became the first so-called project engineer from Syracuse, New York.

He had been our engineer officer in charge of the Syracuse District. I had worked for him for about six to eight years as a— as a civilian employee. My commission was officially dated the 21st of October '42, but I did not report to the Manhattan District until the 5th of January in 1943, when we had pretty well finished the work at Syracuse. So, I was ordered to report to Fifth Avenue in New York City, which was then the headquarters. I was taught how to make out travel orders and how to use a set of travel vouchers. And I got about four to five days of indoctrination about handling of classified documents from— from confidential, secret, and top secret — how I was to handle them, what I had to do with them when I had them, how I took care of them, traveling, and so forth. And I got verbal orders. And if the people that looked at the orders, they asked me to send copies of my old military orders, and I sent them from the day I started, or was commissioned, up to the time I was discharged — I gave the whole picture of the military.

You got your orders verbally in those days from whoever your CO was. Do this, do that, go here or go there, and so forth. And so that's the way I moved around the country, and even coming to this place, my orders didn't reach me until four weeks after I got here. [laughter] The first time. I could tell you a little about what I did. I was in the process from, about, oh the 14th day of January — I was in the process of moving Dr. Fermi's pile from under the squash court of Chicago University to a new site 20 miles south of Chicago. The building had been built some time ahead of time. And, when I built— when they billed me up to the building, it looked like a great, big warehouse, really — brick building — but it was empty inside, big, open floor area, a couple of rows of offices on one end of it. My orders, or instruction, on how to move this pile came from the two Compton brothers. Dr. Fermi himself — Oppenheimer was involved occasionally — and Doctor Bradshaw.

Now, these were just guys that looked like you fellows and like I would look in a suit. To me, they had a doctor in front of it and that didn't impress me at all [laughter] those days. So, my instructions on what to do, how they wanted it moved, what they wanted it built south of town — it was 20 miles out of Chicago — all came on scratch paper of this kind. They were notes, were sketches, freehand sketches. Dimension, but not to scale, and so forth. And for the first time, of course, I had the job of trying to machine graphite. Well, if you want to know what graphite's like, if you've got a lead pencil, that's graphite. That's what it looked like to me. And I went down and saw the pile and I saw the p— to me, it didn't mean anything. They called it a pile. It looked like a

bunch of logs to me that had been piled up, and they told me what had happened or what happened to them. But beyond that, they didn't tell me anything about any problem of radiation. Never heard of that until I got to Idaho Falls, the INEL, some good many years later.

But anyway, we were in the process of moving that pile. And just to show you some of the little problems we ran into — first, we had to build a shield wall. They wanted a 20-foot cube of graphite. They wanted the pieces that went into it dimensioned to, normally, four-by-four; but they may be fractions of that, half of that size, and so forth. They wanted a series of holes to run through it at all different crazy angles, and so forth. Now, see, I get everything in written sketches. I have to convert that to working dimensions for the field. We had built the shield wall around the, the side of the pile, left one wall out, so you can work in and out of it and then put that wall back, and the last thing. The wall was built out of just ordinary concrete, four foot thick, lots of holes to it in different locations so you could meet the openings in the pile.

And this business of piles that we talk about today, these terms weren't even used in those days. They didn't even talk about it that way. And we had the wall up. We were ready to start, and I said, “Where's the graphite?” So, they took me down to the warehouse and I saw chunks about that big around, about six to eight feet in length — round! How do I get them from there to four-inch squares, one-inch squares, and so forth? But what do you do? Well, they don’t know. [laughing] Well, being a stupid engineer, I decided to use woodworking tools. Big band saws, big planers, a mol— what is called a molding machine, because that has a lot of versatility and it can cut grooves, and so forth.

And so, we started to cut graphite to get to what they wanted, and I had to figure the length of the pieces, the sizes of them, where the grooves went in them, and where we cut them off, and so forth. We had problems with graphite. We had a nice— We set up the woodworking tools, and we hired a guy to put in a ventilating system to take the— the sawdust and— and shavings. And he put it in, and when he got it all in, he ran a couple of two-by-fours through a planer and it worked, sucked them all out. So we were off and running. Well, the day that we started the first graphite, we use the band saw. You get a flat side on it to start with.

Then we started— when we got a couple pieces, we tried them through the planer. And it happened as it was, about six inches of new snow on the ground outside the building. And I walked over to the window and looked out. Yeah. Where the collector was, and the ground was black. [laughter] Well, to make a long story short, what happened was, the wood he put through the machine — the collector was not designed to handle that. So it just made a big, flat spiller on it, and nothing would go through it. So, I call the guy that put it in and said, “We've got a problem.” “Fine. We’ll be out Monday.” I said, “No, you'll be here tomorrow morning, Saturday.

New York Saturday and Sunday." They tore it apart, found the problem, put it back together. Because we worked seven days a week, in those days. [laughter] So, the pile was about four foot high. And, oh, well, thank you.

And, one afternoon, the captain, who was my CO at the university, called and said, "I'd like to talk with you." And I said, "Fine." We usually visited about different things, and so forth. And I said, "I'll be— is five alright tonight?" And he says, "No, give whatever you're doing to somebody that can handle it and come on in here." Well, fortunately, I had a fella working with me and he was knowledgeable about working with woodwork, and so forth. So he had been with me all the time. Civilian. And so, I told him, "I don't know what's going on. There's all the information. You know what we're doing. And, and I don't know when I'll be coming back." [laughing] Well, I got to the captain's office and there was a light colonel sitting alongside of his desk, a dapper guy, you know, real slick-looking officer. Engineers don't make very good-looking military people. [laughter] So, the captain introduced me, and says, "This is Colonel Crenshaw, and he'll tell you what you're going to be doing." Fine. So, Colonel Crenshaw says, "Meet me tomorrow morning at 7:00 at Union Station, and bring all your personal goods with you." [laughter]

And I went, I met him there, about 2 1/2 days later, he got off the train with me in what is now Grand Junction. I didn't know where I was. [laughter] I didn't know what I was going to be doing, but I rode for two and a half days with that guy, ate breakfast, supper with him. I even went to the officer's club or whatever you call it, at the Brown Palace, where they serve you drinks, and so forth. Those kinds of good things. And I knew all about his background. He knew about my background. He wouldn't say a damn word about the work. [laughter] And, being the second lieutenant, I wasn't about to ask him. [laughter] You know, I thought that was improper.

So, we had a little incident in Denver. We got off the train about 1 in the afternoon, and he said, "We'll check our bags here," and said, "We'll go up to Brown Palace." Well, it didn't mean anything to me, but we went up there and sat there chit-chatting with these good-looking ladies there, and all of a sudden, he looked at his watch and he said, "Oh, we've got to go." And I knew we wouldn't probably stay too long, but we rushed down to the depot, and I put my chips on the counter and got my two bags back, and he put his up there and nothing came back. And the guy was running up and down in the baggage room looking, and he finally even jumped over the counter and went looking. He couldn't find it, and he came back to me and said, "Go out and tell the stationmaster to hold the train." Well he— mind you, he hadn't told me— I didn't know what train we were riding out on. [laughter] I said, "Well, what track is it on?" He told me.

So, if you know the old station, you used to go down underneath the tracks, in a tunnel, and then come up between them. I even went and got up when the end of the train was just going out of

the station. So I came back and, and, said, “The train was going out of the station.” He was really excited. I couldn't figure out what was going on. And he was running around the corner and making calls, I guess, and so forth. I just stood there. And pretty soon, in comes the station master carrying two suitcases. Throws them up on the counter and the baggage man couldn’t even get his hands on before the Colonel had them, and he had them on the floor. And man, he was really opening this one up, and he opened it up. There was his briefcase, and he opened that up — top secret documents. So I, I never told anybody. [laughing]

But I’ll tell it today. [laughter] Now, this here shows you. Damn guy I talk— we stayed overnight in Denver at the Lowry BLQ. We're going to fly over here the next day and— where are we flying to? He didn’t tell me, “You're going here, you're going there.” We're just going to fly. And we did. We got on a brand-new plane and got up into the mountains. And the guy was circling around, he couldn't make it over the mountain. [laughter] So we came over here, on the same train we would have come the afternoon before. So, at night after supper, he said, “We’ll have to get up at seven in the morning and get breakfast.” He says, “You'll be getting off pretty soon after that.” Fine. And so he said, “Well, this is it.” The train started to stop in the town. I could see where we were, but I didn't know where we were geographically. But it was a beautiful area. And he got up. Says, “This is one of the train stops, this is where we get off.” So, here's his two bags and his coat laying there in the seat. I said, “Do you want me to bring them?” “Oh no, leave them there.”

And of course, he got off and he reached in his pocket, handed me a sealed envelope. He says, “Get yourself a hotel room. Open this up and it'll tell you what you're going to do, who to see, and so forth.” Now, this was Mar. 23rd, 1943. And in those days, you could stand in front of the station. I tried it yesterday. I can't figure out where the — which street I looked down. I could see a hotel sign, “La Court Hotel.” I checked my bags at the railroad station. I had my briefcase with me with my papers in it in the order, and I went down there and opened it, and it says, “Call Blair Burwell.” Mr. Blair Burwell — gave the telephone number, "and he will, you know, tell you what's going on, what needs to be done, what the problems are," all these kinds of things.

Then, another envelope inside was a letter from— signed by General Groves. And it said, “To whom it may concern, if this officer should ask for help, please assist.” A pretty quiet letter for General Groves. [laughter] So, I carried that letter with me the three years that I was here. I only had to use it once. And I used it then only with the commander of the Omaha District office. The colonel there — full colonel. I had gone up there to get some equipment that we needed here for the end of the project, and I had one heck of a time to get by his exec officer. He wanted me to give him the letter. I said, “No, way.” I said, “You get me in there. I'm sure your CO won’t give you any problem when he’s seen it.” I told the CO about it and he kind of smiled. But that's the only time I ever used that letter.

And somebody asked me about it here, if I had a copy of it. That letter was picked up at the time I was discharged from service, when I went to Fort Dix to be discharged from the service in December 1945— '46, '46. So, that's why I don't have it. Now, when I got here. Let's get to Grand Junction. I'll tell you a little about my background. I'm just an old country boy from upstate New York. I was born in Reno, but my folks moved back there in— a couple of years after I was born. And we lived up in an area called Binghamton, New York area. That's a dairy country, dairy and fruit country. And I lived there all of my life. Pitched hay, like, milked cows and everything else. Got an engineering degree, and so forth, and civil. And I had never seen mountains like it.

Excuse me. This is what you could see a hell of a long time ago. I'm 80 years old and my girlfriend's 81. [laughter] Blair Burwell, if any of you have ever met the man, you know, one fine gentleman. Very knowledgeable person. Really interested in, not only the company he worked for, but in the region that he was in, he was working in. He actually did— when he— after he got out of college at Colorado U with a degree in mining engineering, he did a lot of prospecting himself. And he knew this country pretty well. He knew a lot of the people in this country. I don't know much about the period of time and how he got into U.S. Vanadium, and so forth like that. But we didn't really spend much time talking about those things. We talked about the problems of the day, and the problems of the day were, "How are we going to build three plants here?"

And one plant was at Uravan across the river from the— the old mill site. It was near to the tailing pile that was left. And one mill was to be built at Durango. And one mill, an upgrading mill here in the storage area, and so forth, but on this site here. And we had no trucks, no car. Just myself and Blair — of course he had his workforce— was in his existing mill because they were operating under the Metals Reserve Program. They were after the vanadium. They were mining a carnotite ore and extracting the vanadium from them the best they could, get as much of it as they could as fast as they could. The process that he was using was, to a great extent, a process that I think Blair himself devised, and had pride in the old vanadium— or the old Uravan mill. The acid leaching process.

And so, to upgrade, or to build a facility big enough— facility big enough to process what was estimated to be about 3 million tons of tailings from the plant at Durango and the one at Uravan, they'd do it in a very short period of time. And it— an idea that really had not been proven— thoroughly proven, was going to have to be used— the method would have to be used— physical method of handling the tailing, mixing it with the sulfuric acid and the other aspects of precipitating a pregnant liquid to get the uranium and vanadium bottled. Now, we got both. The minute you start acid bleaching — because, as you know, it's a coating on the particle of— of sand. And their process in the mill was to get as much out of it as fast as they could, and so they really scalped off the cream, so to speak. And we were ending up with kind of the dregs. But

Stearns-Rogers had been hired to be the engineering concerned to do the design work of the mills so that they could rebuild. And secondly, to actually, to construct— to oversee the construction of them.

And time was of the essence and materials were the biggest problem. And there's where, probably, I had the most effect of anything on— or assistance, not effect— the most assistance I could give, because I had direct access to a man in Groves' office and priorities. And I could call and ask for something, and if I told him what it was, and so forth, why, I knew that I would, sooner or later, get it. I might not get exactly what I thought I was going to get, but usually we got pretty close to it. The guy's name was Allen C. Johnson. I don't know if any of you have ever heard of him, but it happened that, later on, I was to work again under him, only under him at INEL. He happened to be the second manager at INEL. Allen was an architect by training. He worked for a large architect firm in New York City. And he got tagged, like I did, to get into the military. But he was the fellow that helped the most.

And, we literally had to acquire practically everything we— we got by the use of priorities because we were right in the middle of a big war effort. So, the plants were built. I don't know if there were ever any pictures taken. I was telling people here, I don't know of ever seeing a camera. There was— nobody thought of ever using a camera around any of the plants— the— or pictures of the people who were working there, and so forth. Because it was— you kind of just didn't talk about it. You didn't say much about it. Newspapers never wrote anything about us. The radio stations never had any news about us. So, you tried to be kind of as unobtrusive as possible. That was our instruction. We could— when we weren't at the mill, or even at the mill to start with, they told us they didn't want us to wear the uniform around the mill, the officer's uniform, but we could here in town, in Grand Junction and places like that. Later on, they rescinded that. I don't know that I can tell you very much about what's exciting about the mill designs, and so forth.

Some of the problems that we had, like, we unloaded a carload of concentrated sulfuric acid every day at this rail site right out here in this lot. A gravel pit— this was a gravel pit when we came here. That house up there, that had been the office of the gravel pit, whoever operated it, and so forth. All these piles of gravel and big ponds out there had pretty good trout in them. [laughter] But, beyond that, it was a— kind of looked like a dump. And— But, we ended up putting up warehouses here, which were ex-CCC barracks that we picked up around out in the mountains out here. Pulled them apart, brought them down here, set up four structures that were at truck height. Re-erected the buildings on them, about 10 feet apart. And they were a warehouse in which we stored any material that needed to be stored in out of the weather, which meant practically everything we used — the soda ash that came in sacks, and so forth.

We probably— The first problem that arose: how are we going to move things from down here to Uravan and to Durango? We needed trucks. Well, there were two or three trucks around here at the time that were being used by U.S. Vanadium Corporation, but we needed about 50 trucks. So, between Blair, and myself, and the fellow that they hired as a master mechanic, a fellow by the name of Harold Lund — he's probably long gone by now. But we decided on what we wanted to get, and we ordered them. We ordered 60 figuring that, out of that, we could probably keep 50 running. And it was a beautiful sight when the railroad notified us that it had a bunch of trucks on trail— or flatbeds down here. They wanted to know where they want— where we wanted them put because we didn't have any place to unload them down here. And so we worked out with the railroad deciding where we could unload them.

And I went down to look at them and here they sat: flatbed trucks, canvas tops, camouflaged. They had tandem or rear dual axles in the rear and front wheel drive axle in the back. Two axles were driven, but there were six tires on the truck. Three on each side, in line. Anybody know what I was looking at, in the room? Trucks that were built for the Libyan desert campaign. [laughter] So, there were no cabs except canvas cabs. They looked pretty good. Never been used, apparently, just looking at them sitting there, because no dents on them and paint was good and everything like that. But, my God, we're going to run them out here year-round over the mountains, the cold rain, and so forth. Single axle— or single tires. Not very good traction for this kind of country, if you— I mean, you folks know what the mountains look like around here. Harold looked at the engine — wonderful engine, great, big, old white diesel engine in them. Transmission speed was way off. Rear axle speeds were way off for mountain heavy hauling, and so forth.

So, we ended up converting those to dual axle rear end tandem wheels on special speed transmissions. And the transmission itself, they were ordered from the Hoyt company. They each were built by the Hoyt people. So we got all new axles for the rear and the front and new transmissions. But the rest of it, we used the frame and the engine. Built cabs on them. We bought cabs that we could sit on, to be heated, and so forth. The rest of it, we did the work ourselves. We had to haul sulfuric acid – concentrated sulfuric acid — from here to the mills. We also had to haul material back — finished products back. And so, we built tanks out of steel. They were, I remember, 16 inches deep, normal width, baffled inside. And they fed it on the truck and then there were pockets around them where we had a rack on the top so you could carry a load on the top of the tank, acid in the tank.

And the tank was designed so it held about all that you wanted to haul with that particular truck for a reasonable speed on the road. And it turned out later on, our — we were a little bit too careful in our design. The truck had greater capacity that we really were taxing by that means. So

we ended up later on getting what was called a trailer. We called them buffs. Two axle units, dual wheels on them. Front axle was— could turn the wheels. And we built tanks and put on those. And these were military units that came also. But they weren't built for the Libyan campaign. All we did was just build a body part that went on them. And so, these units matched, painted them all OD. I don't know how many tons of stuff we hauled from here to Durango and Uravan, and how much back. We also used those same ones and put dump bodies on them and got all the tailings from the piles. Wherever we got the material to the head of the— feet of the plants, we used scoops, rubber tire scoops to load with, and so forth.

Now, once that got cranked up, we ran into winter and we had to go over Red Mountain Pass, that, in those days, you went over it, you didn't go through it like you do it now, I guess. And so, we had to work out a deal with the state. They could— they didn't have the equipment. So, we got a rotary plow and they— between they and ourselves, we kept that highway open year-round, going over the— I was telling my daughter last night about mills, the acid. Anybody ever worked around sulfuric acid? Especially when it's mixed with a little water. [laughter] Guys would come to work in Levi's and cotton shirts, and so forth. So, at night when they went home, lucky they didn't need a g-string. [laughter] Fantastic how that]— we tried raincoats, and rubber suits, and rubber boots, and so forth. But, boy, you can't buy clothes fast enough for that.

So, I called Allen and we explained to him we need wool clothing, and what we wanted, you know: wool pants, shirts, coats, lots of rubber gloves, and so forth. We got two carloads of OD woolen clothing that came from the ALCAN Highway, and we all wore them, and that worked out well. It was a lot of differences. Some of the problems in the plants. Remember these, at the time, all of the able-bodied, the best minds and men, and they— the most able-bodied people were gone from here. They were in the army. So we got ranchers, and farmers, and sheepherders, and what have you to run the plants. You needed people to run the analysis of the solutions to determine how we were doing and how much soda ash to use, and so forth, to get full partici— precipitation.

Well, you ran into problems in these areas because some of the equipment we were being used— was being used to do the controls with — the controls of equipment, the equipment itself, mechanical equipment, compressors, pumps, fillers, and so forth. So, word went out that we needed help. And the first thing that I saw — I thought that needed help, I conferred with Burwell — we looked at what was in the tailings when we put them in the head of the plant. We looked at what was in the tailings when they came out of the plant. And we weren't getting but about 60% of what was there. And so, I said to Blair, "God, if we need this material, why don't we get the rest of it? Can't we do better?" Well, he said, "I think we're doing about as well as we

can." I said, "But isn't there some way to improve it?" And he said, "Well, maybe, why don't you pass the word down the line, up the line, and see what happens?"

Well, we got people to come here to help us. Patel Institute was the first one we worked. We gave them part of the problem, and they went to work. Here are some of the people that were involved. Maybe some of them, you know of them. John Ruhoff, or Colonel John Ruhoff, was my CO, and he was a Mallinckrodt Chemical man, chemical engineer. A major John Vance from Princeton. He was a chemist. Major Phillip Merritt from Salt Lake City. You know Phil Merritt? Is he still alive?

Man: No, he passed away about three years ago.

Leahy: Well, he was part of the picture. He'd been in the mining business and, and around mills. There was a couple of civilians. One of them was Richard Alexander, a DuPont. He was a DuPont chemist. And he—the Manhattan District just went in and told DuPont they needed a guy that could do this kind of a problem, and he was the guy that got hired. He was still a civilian — worked as a civilian – but he was out here full-time, worked at the plant. Followed by the name Dr. Harold Berdict [?]. He was from a paint company in southeast Idaho. He was hired to do the same thing. And as a result of this, our average at the end of the project was about 87% recovered out of the toe materials that we were processing. And, as I say, the way we told— we— we sampled the sand that was going into the head of the mill — we had a sampling process on it, and the tailings that went out of the mill were sampled so that you got a fairly representative sample, as far as I could see. They actually analyzed that to see how they were doing.

And, of course, what had really happened was that the— the big problem in that was initially right at the head end of the mill. You— you're taking these tailings out of piles in the summertime. They're hot and dry, and how do you get good contact, a long enough contact period? You know, maybe mixing the water and sulfuric acid, and they used an old pub mill to do it. You can imagine that kind of material, man, it would eat up ordinary steel, would eat it up like it was candy, you know. Wood, it lasted a little longer. Stainless steel, we didn't know about it in those days. And even if we did, we probably couldn't have gotten it because it was needed other places more than here. But see, we're near fights [?], really, when you look back at it, of what we were doing and how we were doing it. But we made a pretty good product out of it.

I got some samples here to show you. You folks can look at these afterwards. These were given to me during the project and at the end of it, or near the end of it, just as kind of a memento. I've always kept it quiet because I wasn't sure that I didn't have government property. [laughter] Yeah. Here's— Here's the two finished products. The nature of them. That's exactly the way this

stuff looked when we shipped it out of here. Here's what came down to Uravan and the Durango mill. This is the dried product that came out of there. This got the uranium, the vanadium, lots of—

Man: Green sludge, wasn't it?

Leahy: Yes, sir. This is what they call green sludge. It came here to Grand Junction, and this is the way it looked when it got here. And it was then reprocessed. This is one of the end products. This uranium was great a content as we could do in our crude way here. This product went from here to Tonawanda, New York to—

Man: Linde Air.

Leahy: Linde Air to be processed and upgraded, and then the next step from there went to Mallinckrodt in St. Louis for the final step, I believe. This is the old vanadium that they used to make here. And this is one of the products that we ended up with. And at the end of the three-year period from processing, we processed more than 3 million tons because, okay, we picked up tailings in Durango, Monticello, Slick Rock, Colorado. You know where that is? Gateway. And there was one other place down in the canyon — White Canyon.

Man: Blanding?

Leahy: Huh?

Man: Blanding.

Leahy: Blanding. Blanding. That's it. And we literally scraped the ground up. I'm sure we processed some of the dirt because we were after everything we could get. And we cleaned out all these old mill sites. I was telling them here this afternoon when we first got here; out of this operation, we produced more vanadium than the Metal Reserve Program produced all during the war effort, as a byproduct. And if some of you want to look at this afterwards, one— one or two of them here will recognize this. This is from the Trinity site. It's some of the sand that was fused. And there's a little number on the back of it. This is one of the gifts they sent to all of the officers that were in charge of projects after the first bomb blew up.

Of course, we had— it sounds like we worked all the time. We really didn't. [laughter] I ended up with 31 GIs that were here. Real top guys. These are fellows that had been drafted because of age more than anything, but they were, some of them were top-notch mechanics, electricians, instrument repair people, lab technicians. One guy we got was a ex-banker. The guy had been a manager of a bank in Chicago and he— he worked out very well to help us with the financial problems with the GIs, and so forth. You know, you got that many people. And the GIs that we

got would show up here in Grand Junction. And I think I know where the building is. I went downtown to see if I could figure it out where it was. The old public service building was where I first went to work here. I had an office in the top floor— in U.S. Vanadium office, and later on we moved it diagonally across the street to what used to be an old Gamble store. The upstairs and downstairs of that was— downstairs was Stearns-Rogers doing the design work. Upstairs was U.S. Vanadium and the people I had in my office.

We'd send out word of what we wanted in the way of manpower to help and plan. And here'd come a guy with his rifle, all of his gear. Most of them had been jerked out of group units that were loading to go overseas. They were really unhappy when they got here. [laughter] I'm serious. They were— they were angry about it because, you know, they've been trained with guys and they looked at this place and said, "What in the world are we going to be doing out here?" They just weren't prepared for it. But we ended up— they actually brought their families here and stayed. Let's see. Questions? Maybe you'll get me on track. I'm wandering a little. [laughter] Yes, sir. Audience Member: What kind of physic— physical security arrangements did you set up when you established the site? Leahy: Well, the site here, we put a fence around it. We used the old boiler tubes for posts and a woven wire fence for cheap fence and a little barbed wire on top. There was none at the mill. None at all. There was none at the garage sites downtown. And where the garage site is, it's now a highway— looks like a highway department office— is all orange and yellow with the road working equipment down there. It's— I remember, I— it's River Street. I drove down it yesterday to see if I could find it and I found the buildings that were there that we used. Yes.

Audience Member: Considering that many of the men were engaged in war at that time, were there any women involved in this project at all or— or not?

Leahy: Of course, in Uravan, they had people in the company store, and so forth. And if I remember correctly, the woman that we got to run the theater— we got pictures for those people. That's one of the things this ex-banker that was a GI, he did nothing but come up with two good pictures every week. [laughter] And we got the films for free and they, they showed them in what was kind of a dance hall up there. They had a room in it and we set it up, and she got trained to run the projector, and so forth, but beyond that, and doing the cooking — there were lots of cooks around. Yes.

Audience Member: Did the staff, the personnel that you were working with, know what the product was going to be used for?

Leahy: Well, I couldn't tell them because I didn't know. [laughter] See, I knew nothing about what is this stuff for and I didn't ask. I knew enough not to ask because I'd have been told, "You

don't need to know that." See, all we need— all we needed to know here and all I knew and all the people that work here, with the exception, I think: Blair Burwell knew what was going on because he had access to a lot more knowledge than I had. And he didn't tell me because he didn't have to. But our job was to get those tailings acid bleached, and recover the material from them, and get it ready to ship from here, and get it done whatever way you can. They didn't tell me how to do it, or "Don't do this. And you do that." We probably goofed in some areas. If I know— knew what they were, I'd tell you, but I don't know. We did what we could.

Audience Member: When did you find out?

Leahy: The day they blew the bomb up in Alamogordo. The day after, actually, it's the day after. We got a teletype from Grove's office telling us the mission's accomplished. This is what happened, and so forth. Yes.

Audience Member: How did you feel when you found out what the reason was?

Leahy: Great. [laughter] Especially when the two bombs went off in Japan because I read the same papers that other people did and heard the news on the radio, and so forth, of how many people it would kill— our personnel. They were killing, and so forth, and it was apparent it did just exactly what it was supposed to — stop the war. I mean, we killed them one way or another. Yes.

Audience Member: Was this site already procured when you got here, or did you find the site?

Leahy: Burwell had made arrangements with a man to lease this land, and we could do anything we want to on it. And so, in the first three years that I was here, I left here on the 19th day of March — verbal orders to go to Oak Ridge, Tennessee, because the Uravan mill — we had torn it down. All you could see was the old concrete foundation. The material had all been sold, gotten rid of, and we're in the process of tearing down the—the Durango one. So, there was nothing more really for me to do here. And so, that's how I got my orders and I went to Oak Ridge.

Audience Member: So, you reprocessed the old tailings plus any new ore that was in processing?

Leahy: No. Well, all the new was then being, to the extent that they could within the existing mills, they were processing it and recovering the old cake. They modified the plants some to do that.

Audience Member: So, there were new places to handle the tailings, the mill tailings?

Leahy: That's correct. Everything had, up to the time we started processing. We did process some of theirs for a while because they were in the process of organ— re-modifying or modifying the plants of Durango and Uravan to recover.

Audience Member: And the— the sludge was shipped over here, not yellowcake?

Leahy: The sludge was called this— what do you call it?

Man: Green sludge.

Leahy: Green sludge.

Audience Member: It was shipped over here for reprocessing.

Leahy: Yes. In the refining process. And then out of that you got vanadium and higher concentration of uranium.

Audience Member: So the sludge had vanadium and—

Leahy: It came from the plants. Yes.

Audience Member: So, the first refinery then was out this side of the—

Leahy: Well, I say it's about where your heating plant is. About as far as the pictures show. Right.

Audience Member: When did you come back to be a head of the CRMO?

Leahy: In August of 1947. And— Audience Member: So, this site was [inaudible] going on here. [inaudible] —have to do that before you come back again.

Leahy: That's correct. Yeah. The storage buildings were still out there. The old processing building was here, and the old log house was here, that's all there was here at the time. And I came back here. I went through a process. I left here and went to— to Oak Ridge, which I was directed to do. Took my family with me. I was going to be on the— what they call the mayor's department down there. It was actually the military people that were supervising the operation of, of Oak Ridge because it still was a closed city. And I ended up to be responsible for all of the stores, the leases of the stores, the hospitals, the schools, the churches, and those kinds of things, working with them, and so forth. And I barely began to get acquainted with people. I got a notice one day, you're going to Brookhaven Lab as a first assistant manager and— and in charge of the engineering division at Patchogue, Long Island. So, I went there and worked there until— into October of— well, just prior to October '49 and of '47.

And I got a notice: “We'd like to have you go back to Grand Junction to start the— the domestic war procurement program. You know the people, you know the country some.” We started in the log building, and somebody has a sketch here showing the buildings that we had built to house the USGS and the CRMO employees, and a— I call them kind of a service contractor, the [inaudible]. They did the early design work of buildings that we set up out in the— wherever the USGS wanted them. We’d set up camps for them to house people and feed them, and so forth, for whatever period of time they were going to be there. We built the roads into the areas for them, and so forth. In the meantime, we were in the process of building the first sampling plant at Monticello. I got that plant back away from the government. They had it been transferred by Metal Reserve to the GSA and I got it back from them. And Gallagher Company in Salt Lake was in the process of preparing the designs for the new circuits, processing circuits in the plant.

We're just getting ready to build a— a sampling plant at buying station at Durango and I won't tell you about it, but John Gustafson came— became the head of the volunteers division in Washington. He had a man working for him by the name of Jess Johnson. Another guy working for him by the name of Jerry — George McPherson. Well, anyway, these three guys are out of the old Metals Reserve Program and the Atomic Energy went and got them because they were used to working in the area of acquiring metal mining materials, and so forth. Well, I'd been rocking along here as a manager, and so forth, and all of a sudden, I found out I was going to have another man that was going to be looking down my back, George McPherson. And so, I started looking around and INEL was in the process of opening. The man who was a manager was a ex-friend of mine in the Manhattan district, an officer. And I said “I— I think I'm in the wrong picture.” So, I went up there to work and that's how come I left you. And I never regretted it. Although, I know that a lot of things happened in this area. It's obvious that a lot of things have happened over the years, but I'll tell you, I’ve had an exciting time. [laughter] Audience Member: When was that?

Leahy: October 2nd, 1949. I moved up there and I left there in April of 1970 when I went to the Albuquerque operations office. And I'm telling you, both of those services: terrific. I’d like to live it over again. [laughter] My second day in Colorado. Up to that time, they had never— my lips had not touched any alcohol. [laughter] And Blair hauled me up to Uravan to see the mill and meet the people, and so forth. And we were going to stay overnight in the guest bunk house there. And so, here are men from the mill down there — young people, older people, and so forth. And of course, a couple of fists of whiskey sitting on the table, and glasses. And the glasses weren't quite that size, but fairly close to it. And he’d pour you half a glass of whiskey. And then he’d say, “Well, what do you want for a chaser? You want ditch or beer?” I'd never drank before. I figured, what am I going to do now? [laughter] Put up or shut up. I started drinking whiskey with a beer chaser. And I could— before I left here, I could drink with any of them. [laughter] I learned one

thing: eat a good meal, lots of meat, before getting into a good time[?]. [applause] You know, one thing; I hope you had some fun, but I had a lot more. [laughter] [applause]

Jim: I appreciate you sharing all of your experience with us. We've only heard a few of them, I think — a lot more and thanks to all your valuable contributions to the nation's interest in national security. You've done a wonderful job for the country. Thank you and I hope you enjoyed your visit here. [applause]