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FERNALD LIVING HISTORY PROJECT
Transcript

Name: Cecil Duff
Date Interviewed: 05/01/99 Date Transcribed: 08/04/99 Tape: 27 Project Number 20012

Tape FLHP0054

06:01:05
Q:
Great! First of all we ask you the hardest question first. If you could just give us your name and spell it so we make sure we have it right.

A:
Okay. It's ah Cecil Duff, C-E-C-I-L D-U-F-F.

Q:
Great, and if you could just start with a little background, ah where you were born, where you went to school, those kinds of things.

06:01:26
A:
I was born in ah, Southeastern part of Kentucky, in ah Booneville Kentucky and I went to high school at Booneville. And I played basketball, and my claim to fame in basketball, I was honorable mention in the Great State of Kentucky in 1944 on the basketball teams. And then after that, ah graduated and went to the Navy, and ah, Great Lakes and from there I was shipped to the Pacific.

Q:
Great. If you can give us a little bit of ah, history of your um, Navy service.

06:02:09
A:
Okay. We ah we were at ah Pearl Harbor ah for awhile after I was ah shipped to sea, and ah, or I was suppose to go to ah, a school, a trade school, you know something electrical or whatever. And ah, all the schools were filled up. And then they just distributed us to the fleet. Of course they shipped us to a, we were on a transport ship and went to the Marshall Islands in _____.

06:02:42
A:
And ah, this was ah, only a few months after I was in the Navy, and I was in high school about four months, three or four months ago. And now I was in the ah, at Marshall Islands, and we passed by ah, a little island where they, ah Japanese occupied but they ah, we were out of range where they couldn't shoot at the ship.

06:03:06
A:
And they just left them there because they were isolated and they used ah their ah, them for bombing practices every now and then, they claimed. And ah, so from there we, ah we spent, I spent about three months in ah, in Marshall Islands, and then we went to the ah Carolina Islands. And there was ah, a service squadron to the fleet.

06:03:33
A:
And ah, we had ah, ah barges that ah, had the ah, they could, the Navy or the Merchant Marines would bring out ammunition and we'd store it on ammunition barge. And then they would ah, bring out food and store it on a different barge and we had barges loaded with every, fuel. And ah then the fleet would ah, like if they were at Okinawa or Hiroshi, at ah, they would come in and draw supplies and then they'd go back, and ah, so that ah, that was the extent of that.

Q:
Cameraperson: Joyce, we need to stop.

(Tape was stopped and then started again – lighting problem)

06:04:21
Q:
Okay, um, so directly after the war, first of all where were you when the war ended?

A:
I was in a, in Philippines.

Q:
Tell us ah about that day when you found out the war was over.

06:04:39
A:
Oh, it was a happy day. It was a, it was the greatest day that I had in the service when the war ended. Everybody was all excited about it. And ah, but ah, I remember ah once in the, everybody was celebrating so much, you know, it was kind of out of control and then ah, I heard one of the Executive Officers, someone said "Okay guys. Get back to your places. It's six months before you can go home." Or something like that so, he was kind of a killjoy and I think he hated to see the war ended.

Q:
End of a job. Right?

A:
(Laughing) End of a job, yeah.

06:05:23
Q:
And ah, you mentioned that you had gone to Hiroshima to see direct to see, directly after the bombs.

A:
Yes.

Q:
Tell us a little bit about that day. What was that like?

A:
All right. We ah, ah, it was about 50 sailors that ah, you could volunteer and go ashore and ah, just to view Hiroshima. And we had a, a Japanese guide that was there when the bomb was dropped. And he spoke a very good English, and he was only about 20 miles away when they dropped the bomb.

06:05:58
A:
And he said that the whole sky lit up and a, and the people in that area thought that the a, the world had come to an end. And a, of course the ah, all the black smoke and whatever ah, covered up the, the sunrays and, and it was dark, you know.

06:06:22
A:
So ah, that was, it was kind of devastating to him, he said that the bomb went off ah way, way above the city. But it was completely destroyed, the city was. There were not, no people there at all. Ah, only charred ah debris and glass, globs of glass, and, and ah, the faces of few buildings ah, ah stone buildings was up.

06:06:53
A:
And then, trees looked like telephone poles, limbs stripped from them. And ah, it was kind of awesome. So ah, that was kind of an experiment I guess, to let the Japanese know it was kind of safe to go back, because of people had toured the place, that American sailors were.

Q:
And how did you feel about Truman's decision to drop the bomb?

06:07:21
A:
Oh, I think it was the greatest ah decision Truman every made and ah, because everything was focused on the invasion of Japan. And at that time the ah, Japanese ah, just would not surrender. They would, course they were kamikaze pilots, and they were, they were going to fight to the last person, woman and child, I think.

06:07:49
A:
Because ah, it was a it was just a suicide mission for them, to not let us invade them, I'm sure. And ah, so, we saved a lot of lives. Truman saved a lot of lives ah, Japanese ah lives, and the ah, the thousands of people that were killed at Hiroshima, is small compared to the people that have been killed, American and Japanese. So it was a wise decision on Truman's part, I think. In fact, we appreciated it. Because the whole fleet was scheduled to head to, to Japan, at that, in the fall, about September or something like that.

06:08:35
Q:
Wow. So ah, in your post Navy career, you went to which university?

A:
I went ah, I got my degree from ah Eastern State College. And ah, It's now a university, after I left; they made it a university. (Laughing) Ah, I had a, my degree was in the area of science. I had a teaching certificate, and I can teach biology, all the sciences, chemistry, and some physics.

06:09:14
A:
And so I taught a couple years in high school and then I coached their basketball team, and during the summer I would get a job, I worked at ah, ah Monsanto Research Laboratories in Dayton, Ohio the first time on River Road. And ah, in a chemistry, I think it was plastics.

06:09:38
A:
And then ah, the ah, the next year, that summer I had nothing to do and I read about Fernald, so I ah applied for a job at Fernald. And from there, ah, I stayed about 37 ½ years. But ah, my work at Fernald, they started me as a technical assistant in the laboratory. And it was inspector chemical analysis.

06:10:12
A:
And I think I had ah, ah one chapter in ah physics in college, on ah inspector chemical analysis. See, it was fairly few, ah new field at that particular time ah, in the 40's, you know, so in the 50's, early 50's.

Q:
So, what year did you start at Fernald?

A:
Ah, I started June 1952, and ah, actually there ah, they had ah, a couple of plants as I remember. The Administrative Building and then the Pilot Plant. And ah, also there was also the Irvine House, I think it was on Paddy's Run or somewhere in the vicinity, on that thousand acres somewhere where the AEC, the Atomic Energy program, now it's the Department of Energy.

06:11:08
A:
Ah, they had bought that land from Knollman, and ah, the Irvine House, ah the metallurgy; ah there was a lot of metallurgy work going on in the Irvine House. I believe that where I reported to work, but ah, they also had the Pilot Plant, the laboratory was set up in the Pilot Plant.

06:11:27
A:
And ah, they ah, there was a spectrochemical ah, room there, that had a spectrograph, a baric spectrograph and a densitometer, and where you could do some spectrochemical analysis. And that's where I started. And the wet chemistry was done inside of the area where the Pilot Plant was operating.
06:11:51
A:
And of course the Pilot Plant was just a small, ah, ah it's kind of a small overall plant. It did the ah, digestion of the uranium, and the ore rather. And they ah, separated the ah uranium, and the ah, as a UNH and uranium nitrate, and ah, boiled it down to orange oxide and fluorinated it to UF_4 and ah, the very steps of making ah uranium ah, they were doing it there in the Pilot Plant.

06:12:28
A:
And then later on, ah, they ah, the ah, they built, I don't know if Plant 1 was built, probable was then. And ah, where they received the ah, ore from various part of the world. Ah, Canada, Canadian ore, _____ and Colorado ore, they had ah, African ore. The African ore was the richest ah, ore in ah, the world, and ah, uranium as far as that goes, so.

06:13:01
A:
Ah, this ah, this was the plant, ah that ah, where it was received. The ah, but actually Fernald, there was a dirt road that went into Fernald. I remember when I first went out there, ah, and then it rained, and everyone had overshoes on, and they were walking, walking in the mud, you know.

06:13:25
A:
And ah, slip sliding around and ah, the ah, ah, from the Irvine House, I remember going over in ah, in a car. And then they would ah; they would let you off. They'd take you down to the ad building and then you walked in the mud to the laboratory. (Chuckles) Over in the Pilot Plant that is, so ah, and, and you had to have a Q clearance to ah, to work there.

06:13:52
A:
And everything was ah, secret, all the real-estate state had, everything you did. Your notebook was confidential or marked secret, that you used to develop procedures and what have you. And the ah, they had a very strict, we had ah, a ah, Clyde Bingham, was a security director, and he was an old retired colonel.

06:14:17

A:
And oh, he was, he was so particular, and so careful about; everybody had to have their badge, you know. And, and ah, if you ah, had, threw paper in the, or ah, carbon copy in the garbage can, they had to be shredded or ripped up and all this.

06:14:39
A:
And one time um, ah, in the Pilot Plant, somebody in the Pilot Plant, there was a, they called a security officer and said "there's a couple of birds over here that are uncleared and that's fooling around, you know." And so, right away, boy they went right over to the Pilot Plant and checked it out. And of course it was a big joke. There was ah, just birds, a couple of birds in there flying around (laughing), you know. And, but they took them serious (laughing) on that, on that deal.

06:15:15
A:
Ah, Bingham didn't appreciate that very much. (laughing) And then

Q:
Ah, go ahead.

A:
Then ah, ah the following year or so later, they had constructed a laboratory ah, and the laboratory ah, ah was well, was well built, well built laboratory. Very good laboratory. We had ah, the ah, technical division was there, we had a technical director and ah, the division was made up of metallurgical engineers, ah chemical engineers, and ah electrical engineers, electronics, and ah, the analytical department.

06:16:10
A:
And ah, the analytical department had ah, several groups in it. Ah, we had a spectrochemical group, which I was in; and the, had a x-ray defraction group; and radiochemistry group and did alpha, beta, gamma work; and they had a radium beryllium source there; and ah, they had mass spectrometry; and ah, then the wet chemistry side had several groups.

06:16:41
A:
And ah, there were different sections. My section was spectrochemical, and ah, so we had ah, ah, a ah, baric spectrograph. The old one we brought over and then the generalized spectrograph, and ah, ah applied research quantometer and, and had quite a, had the most modern facilities to work with. And we also had the development group to develop procedures ah, for the analysis of uranium.

06:17:13
A:
And then when it started in the production of uranium. But the Pilot Plant still operated on a small scale. They were kind of experimental. And then Plant 2 was ah, I'm sure that you've been told that ah, it was the extraction area. Where they had uran, uranium nitrate. And then Plant 3 was the boil down of the orange oxide.

06:17:36
A:
And ah, then Plant 4 was to fluorinate the orange oxide. And Plant 5 they would ah, ah, would ah, put magnesium around this, and heat it up, ah, ah the UF_4 up to a real high degree. They called it the bomb. And ah, it would reduce a ah, uranium tetrafluoride to ah, uranium, and then you would have the slag that they had to, ah do away with.

06:18:06
A:
So ah, each phase of that operation ah, we would analyze ah for impurities in the uranium. Um, the spectrochemical group analyzed ah about 22 elements, like nickel, iron, chrome copper. Ah, boron and cadmium were particularly high, they were high ah, neutron absorbers. And they wanted to make sure that no, none of that was present in any phase of their operation.
06:18:35
A:
And then this, we could analysis ah boron to, down to, as low as 0.2 of a part per million. And ah, this ah, this is very small, when ten thousand part per million is equal to 1 percent, you know. So, 0.2 of a ppm is extremely low and sensitive. But ah, the specification for it, ah if ah, the uranium ah slugs had more than 0.25 percent ah, parts per million of boron, it was rejected.

06:19:12
A:
They wouldn't put it in a reactor, so... Then ah, we were ah, ah referred to as the ah, F.M.P.C. Fernald Material Production Center. And, they had a um, ah, water tower there which had the checkerboard on it; looked like Purina. And, ah people that went by, they thought it was more a animal feed instead of nuclear fuel, you know. Ah, production of nuclear fuel rather.

06:19:57
Q:
And ah, how much did you know about the process when you first got your job?

A:
Ah, the process of uranium? (coughs)

Q:
Um-hum.

A:
Ah, very little. Uh, I just knew that ah, that ah, they, ah, were ah interested in making uranium. Of course, the atomic bomb was made ah, ah from uranium. And ah, so ah, the production of nuclear fuels, ah, was also, for the ah, ah electricity and reactors and all that. And it was supposed to be the thing of the future, which it's, it's very clean, you know.

06:20:45
A:
And now of course ah, the ah, reactors are old, and I don't know if they're gonna replace them or not.

But as long as fossil fuels are as cheap now; coal and oil and so forth, ah they'll probably ah, stick with that to generate electricity instead of ah, uranium, but maybe someday they'll come back to that, I don't know.

A:
The ah, the African ore, was ah, when it was sold ah, to the United States, I think ah that they ah, they stipulated that they wanted the ah, precious metals such as gold. And ah, also, it was, copper's not a precious metal. But it was, it's ah, it's rich with copper and tin in that mining area in South Africa, and we were supposed to, ah, after the extraction of the uranium, which had that residue, and we was supposed to keep that and ship it back to Africa. Because they wanted, ah, there, ah Belgian Congo wanted their other minerals, so.

06:22:54
A:
The ah, they got stuck with the ah, ah, residues and all, and after about 15 years, they said, well, Africa decided they didn't want it; it was radioactive, and all that, and that became a terrible word, radioactivity you know. (laughs) So they didn't want it, so we stuck it in a silo and I guess it's still out there at Fernald in 1999 in the silo. And some of the ah, ah radioactive materials from the Manhattan Projects is there in K65, you know, so that is the ah, really the serious thing about cleanup there at Fernald, I think is to get rid of that.

06:22:34
Q:
Do you know why they call it K65?

A:
No, I don't. I just ah, I think ah, ah probably just ah, one of those ah, identifications which, they named it that because they didn't want anybody to know what the heck it was. (Laughs) They couldn't explain what it is, you know. (Laughs) But that's what they call it, K65. Silo. Anyway, when you, when you mention that, you do know that ah some of those materials in there are radioactive materials are there from Manhattan Projects and so forth. So.

06:23:10
Q:
Yeah, I've been asking everybody that 'cause nobody knows why they call it K65. (both are laughing throughout) I haven't come across one person who has the answer to that question means.

(Both are still laughing)

A:
Yes. Right. If you do, let me know, you know?

Q:
I sure will. (Laughing) Um, you mentioned getting a few (pager goes off on vibrate) ooh gosh, that scared me. You want to hold this for a sec…

06:23:25
(tape is paused and resumed in middle of next question)

Q:
… explain that whole process again? Because that's interesting to me, how the, how it evolved, because you were there. Yeah. Tell us a little bit about um, analyzing the uranium and doing the sampling of the uranium with the spectrograph.

A:
Well, the spectrograph, I said a ah few moments ago, or a few minutes ago. Is, use a plate ah, on the spectrograph to ah, to ah, photograph the spectrum of a sample and, which contai-, a sample of uranium which contains nickel, iron, chrome, copper and so forth. And then you develop that plate and then you can read this plate on a densitometer, ah, a particular wavelength of light, like cadmium is 288 angstroms. Two hundred eighty-eight angstroms.
A:
And ah, ah, the intensity of that light on that plate will ah, tell you how much of cadmium is present in that sample of uranium. Then that sample of uranium may represent a thousand pound ingot. And ah, so we analyzed every ingot for ah, uranium, ah, of the uranium for impurities.

06:24:47
A:
So, ah, a spectrum-, then later on, we had as technology advanced, we had a spectrometer by, built by Applied Research Laboratories. And this spectrometer, ah instead of a photographic plate, ah we used photomultiplier tubes and we could set a tube up to receive the light from each element.

06:25:11
A:
Like, one photomultiplier tube for ah boron, cadmium, and another one, one for boron, one for cadmium, one for iron, one for copper, and so forth. And then, we had a capacitor which we could ah store this ah electrical energy ah from the photomultiplier tube of that lightwave on a capacitor. And ah, then we could read that capaci-, ah that amount of light. Ah, amount of ah, of boron and uranium ah, sample.

06:25:48
A:
And ah, then later on we had interfaced a ah, Hewlett Packard desk top computer with this, and we could pick up, instead of reading it off a scale, then the comp…it would be feed into the computer. And the computer, in the memory of the computer, and it print out ah all, ah 22 elements of ah, in uranium.

06:26:15
A:
So, when they had a sample of ah, uranium ah ingot, ah ingot weighs about a thousand pounds, and they would cut a wafer off the ingot, and punch just a little, punching of the ingot and we'd convert that to oxide. And we'd mix it with _____, and ah, and load it into a little graphite electrode and ah, then we'd analyze this on that spectrometer.

06:26:45
A:
And ah, that way we could, once we ah used the spectrometer we could analyze a sample within a minute and tell you how much, ah of these elements, these 22 different elements were present in that ah, uranium ingot. And if boron was more than 25 parts per million, they would reject the ingot. It wasn't no good. They'd reprocess it.

06:27:12
Q:
Wow. That's quite a process. So they did every ingot?

A:
Ah, yes. We had um, ah some days, ah the lab that I was ah, in charge of, the spectrochemical lab, we, I think we did, we'd do a 100 ingots a day sometimes, some days 120. And ah, that's a lot of uranium, and of course we worked three shifts. Ah, in that laboratory.
06:27:44
A:
And ah, but we ah, we'd also analysis every phase of it. There were the orange ox, the UNH phase, the orange oxide phase, the green salt phase. We even analyzed the magnesium sample that we used ah, to ah in the process to make sure it was free of boron and cadmium.

06:28:04
A:
Ah, we didn't want to contaminate our sample. The trouble with that, it you had this in your magnesium or even in your electrodes, once we, once our ah, company that we got our electrodes from, graphite electrodes, ah, had boron in it. And it drove us nuts, before we found out a) it's not the sample, it's, it's the material that the sample's in.

06:28:27
A:
So ah, and that excited the plants, you know, and ah, and then after they found out that it was in the ah, materials they were using, course they said, "well, dummy." (Laughs) So it's halted production and they didn't like that they wanted to produce as much as they could.

07:01:07
Q:
Alright, um, how pure was the uranium that um the plant produced.

07:01:16
A:
Uh, the final uh production of the plant, it didn't, it was pretty pure if you're talking about percents, but in parts per million they didn't, they wanted certain limits on certain elements and uh, I think manganese I think they wanted it to be about 25 parts per million which is very low and they added silicon and iron to the product to make some metallurgy purpose.

07:01:59
A:
It was the best, uh, it was a better ingot or better product with that amount of silicon and iron in it. The, and those two were added to bring iron up as high as couple hundred parts per million and the silicon 150 parts per million I think, so they could tolerate for that in fact they wanted that much in there present.

07:02:32
A:
And, uh, but they controlled, it was still 99 point something pure uranium at that time. The um, I analyzed some Russian uranium oxide once and their uranium was very pure, much more purer than ours was. Of course they didn't have any neutron absorbers in it, such as cadmium and borium and other elements like rare earths was really important to make sure that they were not present, but they were present in ore.

07:03:15
A:
The African ore had the rarest in it and uh, there were about 11 rare earths and particular we analyzed for uran, uranium ah, europium, samarium, gallium and dysprosium because those, they were high neutron observers. And if they were present then uh, if they were not present well then the chances are non of the other rare earths would be present see. And, uh, europium is really one that has the highest cross section, they wanted to make sure none of it was there.

07:04:01
A:
And that was quite a process to do, to separate the rare earths, we did it in UNH and orange oxide mostly and uh, we did some of the other projects down the line too, but mostly those. We do one every so often and not ever sample, just the whole process control.

07:04:26
Q:
Wow, that's a lot. Can you explain to us what the final product was used for?

07:04:31
A:
Uh, the final product was used as far as I know went into reactors for the uh, they used it to generate electricity, to run nuclear subs and nuclear ships. We did thorium oxide for Admiral Rickover, he was over a big project over nuclear subs, you know. Oh, and he had to have certain specifications for all the elements and we had to process. Actually we were doing this on the spectrometer used in all the latest in equipment and all and he was a very particular guy to please. And he wanted to know exactly

how we did it.

07:05:33
A:
He wasn't too happy with that and of course, we had statistical evaluation of each element and then I went back to the old spectrograph and that was what he wanted, and it was more work, but we had to give it to him that way. And uh, I remember one element he wanted about 70 parts per million of aluminum and that was it.

07:06:04
A:
And these had, they were right on the borderline and we had a terrible time with him on that.

07:06:13
Q:
What was the security like on that project?

07:06:14
A:
Uh, well there uh we were classified confidential uh a at that time and later on of course when Westinghouse came there we were declassified and then it wasn't confidential anymore the work we did. The notebook that I kept you know from day one was stamped secret you know and of course many procedures that I worked on and all was in this notebook and then when we'd fill a notebook we'd take it to the library and file it or put on microfilm.

07:07:00
A:
Well, actually, they filed it in a notebook ah, and kept it. I know ah, a couple o' three or four years before I retired, I guess, I wanted to get my notebook and I had been declassified; I was no longer cleared. You had to go through every so often to get cleared; every five years they ran you through that again. So they declassified that again, and I went to the library to get my notebook and "You can't have it."

07:07:42
A:
"It's secret and you're not cleared." See? (laughing) so I had to go to the technical director and have him declassify my notebook. I was writing all the procedures for the uranium ah, spectrochemical analysis of uranium. And ah, so every procedure that we have, I wrote it in that... then it was given I guess, to the Department of Energy has that. In case they ever go back to production of uranium (ha) again, they will have a procedure, spectrochemical procedures. And of course, the wet ah, analytical, all the radiochemists, mass spec, x-rays, and all the engineers and everything, their notebooks, I mean their procedures and everything were on file, you know.

07:08:37
Q:
Now you mentioned having a Q clearance; wh-, getting a Q clearance, what's that like?

A:
Well, ah, the FBI would investigate your background and see if you're a loyal citizen. So when I applied for the job, I gave the county judge, ah, the circuit judge I think in this little town, I lived in, he was a friend of the family's, you know. And some of the other people in the area, and the FBI would interview them, you know, so ah, the superintendent of schools, you know, and what kind of a character I was.

07:09:15
A:
And ah, they gave me a pretty good reference. (laughing) When they asked, asked the judge if I was a loyal American, and ah, he was irate; he said, he told the FBI that did he ever meet a person in the hills of Kentucky that wasn't loyal, ah; American.

Q:
That's great. And how much could you tell... Well, how did you explain your job to your friends and family?
07:09:51
A:
At that time? Ah, my wife worked there for a while, and she had to get her Q clearance also, and so, (clears throat). I, I didn't, they knew what I was in, ah, you know, the field that I worked in, and it took them a while to get used to the name Optical Emissions Spectrocity, you know, or (laughs), Spectrometer or Spectrograph, but they. And the boys knew, and ah, of course the, that was no secret, the instrumentation and so forth, and the analyzing the impurities and the uranium as far as that goes.

07:10:39
A:
But the secret part, or the confidential part of it was, what are the specifications of the elements like boron or whatever they were using, and that was more a classified part of it.

Q:
Um, now generally, how do you feel about having worked at Fernald?

A:
I feel real good about it. It's a, it's a good experience. It was an excellent experience and I certainly learned a lot about spectrocity, analytical chemistry, and I enjoyed it. And real fine people there, and I don't think it is as dangerous as ah, as it sounds, because uranium emits alpha beta gamma rays, and the gamma rays are what penetrate more, but really, you can handle it and you don't have any problem with it

07:11:44
A:
I never would want to ingest it, but ah, but as far as uranium, natural uranium and all, ah, I think really that there's more uranium in the hills of Colorado than there is at Fernald, other than the silos, so I don't see that much danger in it. The fish that they were analyzing; the pit that had uranium in it and so forth, they did not have ah, they couldn't find uranium in their system.

A:
Or the cattle that grazed there in the field, even though there was. I'm sure there was some ah, oxides of uranium that drifted over in that pasture with the cows, and I feel confident that they ate some of it. And I think it went through their digestive system without getting into the blood stream and getting into the milk, and ah, whereas something like mercury, it gets into the system, it gets directly to the brain and you come out a "mad hatter," you know, so ah.

07:13:03
A:
I don't think it's a very dangerous place to work, of course, a lot of guys, ah, they worked in, with the uranium tetra-fluoride, I've seen 'em, their white uniforms were green, man, you know, and they had masks on to keep from breathing it into their system. Yet I'm sure that it showed, uranium showed in their urine, and they were very good about ah, analyzing it; we had to wear a badge you know, a monitor see if, how much exposure we were being exposed to of uranium.

07:13:52
A:
They did that, and ah the whole time I was there, I don't believe I ever showed that much if any of this on my film badge. They have a record of it there I'm sure. And ah, this, they did real good annual physicals every year. And they checked you for if you were exposed. And some, some of the fellows had ah, uranium, they passed uranium in their urine, but apparently it wasn't that serious to them, it didn't do any serious damage.

A:
Of course, they did their medical records, they kept real close on. And the nice part, now, I go back every year for an annual physical and ah, that's a great benefit I think from having worked at Fernald when you get that free annual examination every year.

07:14:52
Q:
With the medical monitoring and.

A:
Right, yes. So it's they've been, it was very good to me, Fernald was I think and was able to ah, send my boys to school with their help, they helped (laughs). So it was very good.

07:15:18
Q:
And who were some of your favorite people on site?
A:

(pauses) Well, ah, A lot of 'em, I mean I don't know if I could point out, I.. I had a lot of good friends there, ah. I ah, Carl Polston, the technical director was a real good friend, and ah, oh, Ernie Adkin, Harold Humphrey – have you met Harold yet, Mellander?

Q:
No, but he's on my list. (both laugh)

07:16:05
A:
Oh, he's quite a guy. And the guys in the analytical department, there's a number of them, are good friends, good friends today; Jim Poe, Dick Prough, Jim Robinson was a good friend. Then there was the guys in the ah, Ray Sisson which you ah, interviewed, which he was a character a really nice guy. We had a lot o' fun with a lot o' guys. We did, we'd have an annual party every year, Christmas party or something like that, way down at the Pavilion, and ah, the analytical department.

A:
It was about a hundred of 'em in that group, department. It was upstairs in the Pavilion, it's now an antique area there in Ross, it was known as Venice Pavilion then and Fiehrer I believe was the fellow who operated it. And ah, so we had this party upstairs, and we were doing the "Bunny Hop," (snickers) you probably don't know what that is. But everybody hit the floor at the same time, you know and 1, 2, 3, and then they were up in the air and then down, you know, (while laughing)

A:
And about 100 people upstairs, and the rafters were vibrating downstairs and the owner came, the proprietor, Fiehrer, he came charging up and oh, he was so excited, "The building's gonna fall!" he said (continues laughing). So everybody said, "The sky is falling!" you know, anyway... It was right over the bar downstairs, and they had tables where they served dinner and all, and a bar.

07:18:06
A:
But we were upstairs in the ballroom, you know, and he finally got us settled down, and it wasn't long after, he had to come back up again and settle us down because everyone hittin' the floor at one time, it was dangerous you know.

Q:
That was a good story. Yeah, I've been upstairs in that area down there where they have the antiques and everything. (laughs) Well, umm, let's see, I think I've got everything. Oh, one thing I wanted to ask, how do you think about the work that's going on at Fernald now?

07:18:44
A:
Uh, well, it ah, they're doing a lot of work. It's gonna be a beautiful place when they get finished, (clears throat). And I think that it's gonna be one of the cleanest places in the world, I think there'll be less uranium there by the time they get through than there was before they even started (laughs) you know. I think there's traces of uranium in the soil, you know, so they're gonna get it to that point or that level I think, or below what it was. So, but ah, I think they're going to it's gonna be a nice area. It'll probably, will turn out to be a park or something.

07:19:37
Q:
Now you recently took a tour of the facility?

A:
Yes. Yes.

Q:
Can you tell us about that?

A:
Well, Carr is the guy who gave us the tour, and ah, he did an excellent job. It was very interesting. They were scalping the earth and getting the soil away from the ah, I guess kind of southwest area of Fernald. And gosh, they were removing a lot of soil. Ah, and I don't know why, but there must have been a reason, that they must have discovered some natural uranium down there and they want to get rid of it too.

A:
Anyway, it was a real nice tour, and he took us around to the old familiar places. I didn't tour, did not tour the lab though, but I understand that the equipment is still there that we used. Of course, they built a new lab and reinstalled all new equipment, you know. Of course, the equipment that we used, they'll probably bury it somewhere, you know (smiles). But it's still good equipment and, but it's a little bit contaminated I guess with uranium.

07:20:57
Q:
You mentioned a park, and what would you like to see done with that land that Fernald is sitting on right now?
A:
Oh, I, I think a park. Really. I think it would make a nice park. It's kind of a hat right now, it's kind of a haven for the deer and ah, the field mice and all that (laughs), and it'd be a good project for the community. You know, I don't know if it would be available to, for industry to move in and if they want to sell it and try to get some of the loss that they have recovering it, it's fine. I would, I wouldn't object to that at all, an industry could move in and carry on with something else.

07:22:02
Q:
And one of the terms that they've sort of been banding about at Fernald lately has been "The Cold War Warrior." And you would be considered a Cold War Warrior 'cause you worked there during the Cold War.

A:
Yes, right, yeah.
Q:
And how do you feel about that term?

A:
Uh, well, I ah, so. I feel it's probably appropriate (laughs). But we ah, we did produce a lot of uranium, not necessarily for weapons, but ah, it was ah, it was beneficial. They used an alloy of uranium ah, niobium, titanium, and ah, melibanum, and ah, from the depleted uranium, uranium that was less than normal, normal uranium is 0.75, 0.71 percent U-235 well, then they went through the gasses, the fusion plant over at Portsmouth.

07:23:22
A:
It ah, the uranium was depleted and it was only two tents of a part per million of ah, of enriched, of uranium-235 so (clears throat) that uranium, they wondered what they were going to do with it, you know, use it for door stops, because it was really heavy. But they used it as penetrators, ah and it made it into a penetrator for a gun, 40 millimeters or whatever. And ah, this was so hard a material that it would penetrate a armored tank, you know, so ah, in the event this Cold War came to a fight with the Russians, we'd have something to penetrate, penetrate their tanks with was this alloy, uranium, alloyed uranium, depleted alloy uranium metal, ah, missiles, you know.
07:24:24
A:
So, that was something that developed off from the ah, ah, fuel business, you know.

Q:
Now during the Cold War, what was the typical American's mind-set?

A:
Well, (clears throat) they, (pauses) we didn't want to go to war, you know, with anyone. I think I'm probably typical, but actually, I would have preferred not to go to Vietnam, because World War II was supposed to be the war to end all wars, you know, and no more of this monkeying around with the wars. But then the Korean War came and ah, which I don't think was necessary really, and then the Vietnam War, and then the war today.

A:
It just, ah, you think there's no end to wars, ah, just to destroy Belgrade you know and Yugoslavia. It's sad really, and the cause is good. I mean the reason they're doing it, but destroying all that beautiful city and all the things they've worked for all their life, it shouldn't be necessary, really, wars shouldn't be necessary, but they are, they're there. And right now, India and Pakistan's at it, and what're we gonna do there? See? And Africa, they're killing each other off like flies you know, and it's just something that we cannot control, I think.

07:26:49
Q:
How do you think Fernald helped to defer war?

A:
Well, because of ah, the production of uranium helped our arsenal. And I think since we had this arsenal and the Russians did not, that's the reason they had to back down, a lot of places like in the airlift and Berlin you know, after the war; that was the cold war. They did not have that perfected you know and we had it. And even though ah, when they blockaded Berlin, that time we flew in over the blockade, and then they, they would their fighters would aggravate the transports into that.

A:
A:
But then Truman or whoever it was (pauses) flew some bombers over there and kind of patrolled around a little bit. And the Russians didn't know if they were loaded with nuclear bombs or not, and they kind of backed off a little bit I think, ah, I think it was a deterrent really.

07:28:29
Q:
Ok, I'm, did you have anything else you wanted to cover?

A:
No

Q:
Anything we didn't cover that you wanted to talk about?

Q:
OK, I think that's it, (video zooms in on interviewee's microphone).

(Photographer: Nat sound?)

Q:
Yeah, um, we're just going to be doing a little bit of nat sound if we could have quiet on the set for a minute. This is nat sound.