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FERNALD LIVING HISTORY PROJECT
Transcript

Name: John Holliday

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Tape FLHP0051

03:01:08
Q:
Yeah, actually, first question is real hard. If you could just give us your name and then spell it so we know we have the right spelling.

A:
Okay. Now?

Q:
Anytime you're ready.

A:
My name is John Holliday. J-O-H-N. Middle initial is P, as in Peter. Holliday, H-O-L-L-I-D-A-Y.

03:01:25
Q:
Great. If you can just tell us a little bit about yourself. As far as where you were born, those types of things, where you were educated.

A:
I, born in the Philadelphia suburbs in a little town called Wincoat, which not too many people have ever heard of. And educated in public schools and upon graduating from high school, I enlisted in the Army. This was at the tail end of World War II obviously, and got shipped off to Italy for 14 months. And then up into Germany and so forth and guarded prisoners of war in Italy for quite a long time. Came back home and entered collage and halfway through my junior year, I got a little notice from the draft board saying they'd love, like to have me come down for a pre-induction physical, the Korean War had broken out.

03:02:28
A:
Well, rather than interrupt college, I joined the ROTC and graduated with two little gold bars on my, one little bar on each shoulder as a second lieutenant infantry. And to make a long story short, the Army decided to send me into nuclear weapons in a big way. They trained us at Sandia Base, New Mexico, and I became what was called a nuclear supervisor for the Army. And the only other, there were only four of us in the entire Army, and I was one of them. Five of us all together, and I was one of the five. And uh, spent about three years in the, on a general staff as a Nuclear Weapons Logistics Officer at Fort Bliss, Texas.

03:03:02
A:
And then left the Army in about 1957, and went to work for Babcock and Wilcox Companies, Atomic Energy Division in Lynchburg, Virginia. And uh, spent about four years there as a group leader. And the nuclear reactor, commercial nuclear reactor business was kind of in a tailspin in those days and there wasn't much work for us at all to do. And, so I applied for a position, and obtained a position with the Atomic Energy Commission, San Francisco Operations Office.

03:03:58
A:
Which was actually located in Berkeley at the time and went out there around 1961 or so. And to make a long story short, I spent about 18 years at that office and another one year at the Chicago Operations Office. Then ended up at the Idaho Operations Office in Idaho Falls, Idaho. Working in Idaho Falls and out of the INEL, Idaho National Engineering Lab in, again mainly nuclear products. And then towards the end in general site construction. I was a branch chief of construction for the office itself up there.

03:04:49
A:
Finally retired in 1985 and became a consultant to EG&G Idaho, site contractor for the site. Incidentally the site out there is a fairly large one which I mentioned, 890 square miles of real estate out there, which makes it, I think the second largest in the country. And uh, then heard about a job opening at a place called Fernald in Ohio. And I first had to get a map out to find out where Ohio was, and then finally located Fernald, and low and behold, they offered me a job here as a project engineer. So, I came here in 1987, January of 1987 and began work at Fernald on the 4A Project.

03:05:34
A:
Project that makes very, very high quality nuclear ingots for later processing at other DOE sites, mainly Rocky Flats and out in Idaho Falls as well. And that, those slabs eventually became, in case your interested, in the armor protection for tanks, U.S. Army tanks, and was utilized as armor protection during the Gulf War, with a very, very high degree of success I might add. These armor plates or ingots that we had, that we had produced at Fernald were later milled and rolled and so forth. So, that really served the purpose in protecting especially the tank treads from anti-tank artillery fire and what have you.

03:06:31
A:
Uh, then of course in 1989, we were given the directive to shut down all production and my job then at Fernald turned to site remediation as a, you might say, a cleanup project engineer in a number of different remediation projects rather, and that lasted until about 1995, after which time I had calculated, that put in about, something 44 years or so in the nuclear business, and I think that's long enough for anyone. So I decided to retire in other words, at any rate so. And I want to say right here and now, that I enjoyed every single bit of my entire career beginning with the Army was back in 1952, 1953, up until the end of my work at Fernald.

03:07:33
A:
I just enjoyed every bit of it. I thank the Lord for my being able to get into that kind of business. And I wish everybody at the site out there now, well in their continuing clean up efforts. And I know they are going to turn that site back into an acceptable piece of real estate, you might say from both the government point of view and the neighbors' point of view as well. That's about, that's a very long answer to a very short question.

03:08:12
Q:
No, that's good, that's good. Um, let's back up just a little bit into the, into your career during the 1950's. Tell us about the early days or the, you know, first decade or so of working with nuclear weapons, what was that like?

03:08:30
A:
Well, uh, at the time there were only a total of seven different types of nuclear weapons deployed by the Air Force, the Army, and the Navy, so we were practically at the outset you might say. Of course we had been working on these since 1943, we the government had been developing nuclear weapons. But in 1952, '53, uh, the Army had just three weapons themselves. They had the Honest John, the Corporal Missile, the Honest John Rocket, the Corporal Missile and the 280 millimeter artillery piece which is a, one of the world's biggest cannon at the time.

03:09:19
A:
And I personally was trained in assembling and disassembling and inspecting the warheads for all three of those weapons. We did not get involved with the Navy weapons of course or the Air Force weapons. This school we attended at Sandia Base was a tri or three branches of the military, I was trained, in other words, with Air Force officers, Navy officers and one Marine officer believe it or not. Yet, here I was with the Army at the time, so it was kind of a unique experience with an Army type like myself.

03:10:01
A:
At any rate, I was fortunate in being able to be at the Nevada Test Site in 1955, where we were able to watch the second underground nuclear explosion there and also another explosion at Tower Shot. Tower Shot was very interesting in that we were in trenches exactly one mile from that device that went off in the tower. And we were down in the trench facing down with our eyes closed and it was about 4:00 o'clock in the morning, so it was pitch black out there, and yet when that device went off, nuclear explosion went off, I saw bright lights believe it or not.

03:10:48
A:
It startled me and I was with a friend of mine, Major Stoffer, at the time and he experienced the same thing. He was down in the trench right next to me. But then after that, after the explosion went off, we were able to walk up to within about 200 feet of the tower that no longer existed there to look at what occurred as a result of the blast there. The second shot, as I say, the underground shot, we were standing on a mesa about 3 2 miles from that place when it went off, and that's the one I have a picture

of (excuse me), but that was an underground shot and the fellow, the Second Lieutenant that went down and armed that weapon, down in the ground couple hundred feet was actually one of my subordinates in an ordinance that I had been in.

03:11:45
A:
I helped train him, kind of tie into the shot going off itself, but that was mighty impressive to watch land over there suddenly start to rise up, your eyes can see that happening, but your brain refuses to accept it, if that makes any sense to you. It was, it was very startling and very shocking to see all of the sudden the ground come up and then of course the weapon itself went in the air, what have you. But it was interesting, it gave me a tremendous base for my later work in nuclear reactor development and in cleanup for that matter. I enjoyed it. I felt I was privileged to be there, I'd say. But uh…

03:12:38
Q:
What did the shock wave feel like?

A:
It ah, on the tower shot when we were down in the trenches, ah it lifted both me and Charlie Stoffer off the ground about this much, then dropped us back down. And then all the dirt they had piled up between us and the weapon, came down in the backs of our necks and so forth, (chuckles) we had to shake dirt out. But it, it was quite a jolt.

03:13:06
A:
And ah, we were suppose to stay down there until the shock wave came past us, and that's what lifted us up and dropped us back down again. Then after that occurred, we were allowed to stand up and watch this incredible purple column of inferno you might say, rise up into the stratosphere. It was just, it was awesome. None of us had ever seen anything like it.

03:13:34
A:
We had ourselves, Charlie and I, from the office of Special Weapons Developments and about 10 or 12 Army officers from the Army's Command and General Staff School at, at Fort Leavenworth were also there, they're also in the picture. And they were equally astounded by the whole thing.

03:13:53
A:
I think somebody at Trinity site in Los Alamos, when they set off the first implosion type weapon repeated the phase "What hath God wrought" when he saw that thing go off down there. And ah, I felt the same way, I was just totally awed by the whole thing.

03:14:12
A:
But ah, oh its ah, now a days that I'm retired, or upon retiring I should say, I, I've been busy in church work. I've been a deacon, and then an elder, and finally a trustee at the Presbyterian Church in Hamilton. And ah, um, also very active in helping out the Open Door Pantry, I'm on their, on their, Vice President of their advisory board.

03:14:44
A:
That's, that's in downtown Hamilton, in the second ward over there. In fact I was there this morning. I've been ah, I'm now the Vice President, I've been the treasurer of the advisory board. That's such a beneficial operation to the community down there.

03:15:00
A:
We, we hand out food to needy families, we hand out used furniture, used clothing, ah, baby materials like diapers, and baby formulas and so forth and right now were very short on diapers, I found out today. We need, we're just about out of large size, extra large diapers, I didn't know they made 'em in different sizes, but apparently they do so.

03:15:24
A:
It's one of those things that, I'm gonna go down and buy them some, I think. And ah, and, ah, I've been involved in the ah, Partners in Education at, out of Fernald with Dave Lojek. And ah, I enjoy that throughly too, getting out with the kids and ah, trying to dazzle them with our vast and half assed knowledge about matters nuclear and so forth and ah.

03:15:50
Q:
Tell us about how that process works, the Partnership in Education.

A:
Ah, somebody on the Fernald staff had contact with various schools, mainly in ah, at the junior high school or middle school level you might say. And what arranged for Dave and me to come there and discuss rocketry which I knew absolutely nothing about, which Dave did, thank goodness. The use of telescopes for scanning the skies and what have you. And ah, Dave was the ah, lead man and I was more or less an assistant in that.

03:16:33
A:
But, we'd go around to a number of different schools; Crosby Township Schools down there, ah Garfield, Ross Middle School, and probably four or five, or three or four other schools ah, mainly in the Hamilton, Butler area, much. Ah, in the afternoon, and we'd have ah, we'd contact the science teacher usually at that school and she or he would arrange to have their, their children stay there after school to ah, sit and listen to the speech that we had.

03:17:08
A:
And we had a slide show for them, and photographs. Dave has a magnificent collection of ah, pictures that he has taken of some of the planets and the moon, and what have you, that he's reduced to slides and to negatives and so forth, or full blown pictures, you might say. That we, we would pass out and we'd discuss it and have a question and answer period and then serve soda pop and cookies, something like that, afterwards.

03:17:38
A:
And ah, we, we enjoyed it doing that. The kids, a lot of them were very reluctant to even ask questions until after they had loosened up a little bit, and we had to I suppose. So I think it was a benefit to them, at least we hope it kind of piqued their interest in ah, in things scientific, you might say. Of course the rocketry was, everybody turned out for that, 'cause ah, we had some awesome shots. (chuckles) Usually in the middle of a very, very big school yard or football field or something like that. But ah, we enjoyed that too, so.

03:18:14
Q:
A little Fernald outreach. (Laughing)

A:
Yup, that's right.

(Tape cuts out briefly, then begins again)

Q:
All right, we're ready. (And we're rolling) Ok. Let's talk about your work in a lot of the classified projects that you worked with in the early years.

03:18:31
A:
All right. The ah, the, the first time I was involved with classified nuclear material of course, ah, was with the Army. And ah, when I left the Army and went to work in, at B&W, Babcock and Wilcox, and with the AEC, I was in non-classified projects. These were civilian nuclear reactor development projects. And my first brush with that had to do with the safety of conventional nuclear reactors. Water cooled, uranium dioxide fueled, ah nuclear reactors for commercial power generation purposes.

03:19:11
A:
And ah, I almost, I focused just about all my attention to, actually boiling water reactors that general electric company down in San Jose was trying to develop at the time. We had no contractors, we were involved with pressurized water reactors, the other main type of commercial nuclear reactor at the time.

03:19:31
A:
A lot of, I headed up, I managed all of the work at GE, from the AEC standpoint, having to do with safety of nuclear reactors there. Ah, we later ah, became heavily involved in the liquid metal fast breeder reactor there, that involved ah plutonium and uranium in their fuel makeup. Ah furthermore they were sodium cooled rather than water cooled, which, brand new technology to me, but we quickly got involved with it.

03:20:07
A:
And ah, again GE and several other contractors ah were involved in the sodium metal cooled reactors business, you might say. Ah, we, that worked pretty much culminated in building a, an experimental fast oxide reactor in Arkansas, just south of Fayetteville Arkansas, called the C-4 reactor. It was to demonstrate the safety of a reactor. The ability for the reactor to shut down in the event of a overpower event in it, or a under cooling event which might present a dangerous situation in it.

03:20:54
A:
And fortunately, it worked and that was the first time that this country or the world in fact had ever fueled a fast breeder reactor prototype with oxide fuel. Up until that time we had used strictly metallic fuel, fuels made out of alloy like plutonium, plutonium uranium, plutonium uranium, lithium alloys you might say. So, so that did established the concept of being able to build oxide fuels.

03:21:24
A:
Oxide fuels have the advantage of being able to be much more stable, ah physically in a reactor, environment heat and what have you. Fortunately that reactor worked very well, thank you. During the course of that time the AEC became very much concerned about proliferation. That is the spread of nuclear materials in the hands that ah, in the countries that are _____ to our purpose, to our national purpose.

03:21:57
A:
And ah, I had been involved in getting 220 kilograms of weapons grade plutonium transferred to fuel manufactures to produce the fuel for the reactor we built in Arkansas. Well, the Atomic Energy Commission all the sudden got a bunch of inquiries from Congress as to how, what are we doing to safe guard this material, making sure it's not converted to other purposes.

03:22:28
A:
I came to work one morning, out in the San Francisco office, minding my own business, I was called up to the manager's office, and Mr. Shoup said you are to get on a plane this afternoon and go back to Washington, excuse me, and you are to meet with so and so back there. And the purpose of this, is to tell them what we are doing to protect the plutonium material.

03:22:53
A:
I said okay. Now this is pretty heavy stuff for a young lad like me at the time. But nevertheless, I did as I was told. To make a long story short I ended up testifying in front of what they called a Joint Committee on Atomic Energy, we called it JCAE at the time. And ah, but before I had been alerted by AEC lawyers and other experts to absolutely tell the truth, do not lie to them. They probably already know the answers to the questions their asking, so if you don't know the answer tell them you get back to them within 2 weeks and so on and so forth.

03:23:30
A:
We all jumped in the car and testified in front of this committee, and that was quite an experience for me. I had never been involved in close too that, but at any rate, we ah, ah, had just about finished out my work at the San Francesco Operations Office. And then in Chicago, in Chicago Operations office, we were going to build a fast reactor safety test facility out in Idaho.

03:24:02
A:
And ah, Argon was to do the basic design work, Argon National Lab was to do the conceptual design work you might say. We ah, got very close to completing that conceptional design effort when President Carter decided that fast reactors were not going to be supported by the US government anymore.

03:24:23
A:
And overnight practically, he shut down the whole operation. And ah, the whole effort you might say throughout the country involved with fast breeder reactors. And that's strange too, because Carter himself had been out in Idaho, training as a Navy officer in the nuclear submarine business. And was trained undoubtable in the Navy's nuclear warheads and what have you. At least to some extent, I would imagine. But he, he distrusted the fast breeder cycle all together.

03:24:57
A:
And ah, nevertheless, he shut that down, rather than sit around in the Chicago office, I applied for and got a job out at the Idaho Operations office. Went out there and became a branch chief in construction, ah, in what they call the Idaho Chemical Processing Plant.

03:25:14
A:
And, it's interesting we worry about contamination at Fernald to a fairly, well the contamination we had out at the Idaho Chemical Processing Plant was worse in intensity and danger by factors of hundreds of thousands than the material here at Fernald.

03:25:35
A:
By that I say, we had material taken from, ah the Navy nuclear submarines for example that had been exposed in operation in the submarines with an incredible amount of very, very high level radiation activities in them.

03:25:52
A:
Ah, give you an example, we, we pulled a piece of Navy fuel out, that had been taken, set back to us by the Navy to, that's what the Chem processing plant did. It dissolved down that, that fuel, extracted the fissionable material, U-235 out of it, gave that material back to the Navy's fuel manufacturing facilities so that rather than make new U-235, they could give them the stuff that hadn't been used up.

03:26:24
A:
Well, we had a piece of fuel about this long (demonstrates with right hand fingers spread approximately1 inch apart) and ah, approximately a half inch diameter and a very heavily shielded glove box, with lead glass windows 4 feet thick and so forth, and it was reading 1200 R, to give you an idea of what, what kind of radiation level we were dealing with out there.

03:26:47
A:
(Coughs) And ah, I mention that to provide a comparison as to what the situation here at Fernald is. This is very, very low level stuff relative to a number of other sites. Hanford out in Washington, Savanna River Operations down there in Georgia and South Carolina, the Idaho Chem Processing Plant and so forth, all are, are orders of magnitude, worse off from a contamination point of view than, than ah Fernald is.

03:27:25
A:
And ah, I think that, I say that to try to give people perspective on what we have out there in Fernald by way of contamination. There is contamination out there, there's no question about it. But it can be handled, it, it ah, it's not an immediate threat to life such as exists in other AE, DOE sites.

03:27:47
A:
And it's gonna be cleaned up, there's no question about it. And I'm, I'm pleased just to, to see the progress that has already been made out there. Ah, I think you folks are doing a great job out there and I'm proud of ya.

03:28:02
Q:
Thank you. We're going to change tapes here. That's great.

TAPE FLHP0052

04:01:01
A:
Am I still wired in?

Q:
Yup. It should still sound good. Um, I'm interested in the security you had to go through in all of the locations that you worked. Could you just ah, go over that just a little bit, tell us what the security was like in each, in each one of the locations that you were?

04:01:24
A:
Sure. In order to get into the nuclear weapons program ah we were required to have what were called Q clearances, which enabled you access to top secret information. And for Army types like, like ourselves, we, that was the top of the ah, the ladder, we thought, as far as security. And it took about 3 or 4 months for the FBI to run background checks on us, go around to all our different neighbor, ah believe it or not where we grew up as children and so forth and question all those neighbors.

04:01:57
A:
And, it's interesting, my father had to have a top secret clearance during World War II, and then my brother who got into, into the Korean battle, ah was in the Army security agency, well each time they, they had the FBI investigating the background and so forth, the FBI would come around and ask all the neighbors back in the Philadelphia suburb I grew up in.

04:02:24
A:
And then along about 1952 when I was going into the nuclear weapons program, back come the FBI to little 'ol Wincoat, PA and start talking to all the neighbors. By this time the neighbors are about ready to throw us out of the county. (Chuckles) Because there's something wrong must be going on with this family, all this FBI. But I think the FBI probably explained all that to them. But at any rate.

04:02:47
A:
Ah, all the work we did, ah virtually all of the work we did in the nuclear re, the nuclear weapons program was classified - confidential restricted data, which meant it was nuclear related or secret restricted data, or top secret restricted data, top secret rather if you want to bar between.

04:03:10
A:
But we, ah, give you an example of the physical security that was involved, ah, the time I spent at Rocky Flats ah learning, being trained on live nuclear weapons components there, ah we were issued a badge at the main gate, we had to go down an aisle and trade that badge for another badge under the scrutiny of guards standing by and everything. And we had to do that four more times, so we had to trade five different badges to get back into our training area within Rocky Flats where, where we were allowed to work, work ah with the material back there.

A:
Ah, one of the interesting stories, nope I don't can't, I don't think I'd better talk about that. Sorry. (Laughs) I was gonna start talking about weapons components, but I can't.

Q:
That's okay.

04:04;09
A:
But security was absolutely as strict as you can imagine, ah and fortunately after I got out of the Army, and, and when I went to work with B&W did not need a security clearance in the type of work I was doing there. When I went back with the AEC in San, in the San Francisco Operations they of course had to immediately reinstate my clearance.

04:04:35
A:
And we, we always had to wear badges, ah, we were never allowed in the building in the office building out in Berkley, but ah, you handed your badge to the guard and the guard looked at it and checked both sides and handed it back to you. And we accepted that as a matter, matter of course, you know, that was the routine.

04:04;55
A:
Ah, we ah absolutely had to take total care of any classified documents that were in our possession, you could never leave them in your desk at night. You had to lock them up in what we called three tumbler safes, to this day I don't know what that means but I guess they were the standards for safe safes in those days. If I may use that phrase.

04:05:22
A:
The, I think that's about all I have to, I can think of saying right now about security. But it was absolutely demanded of us ah, none of us ever dared consider violating safety rules. We had one incident where a, a secret document was put into a safe drawer, and the safe was closed and somehow the document fell down behind the drawer itself into the back end of the safe.

04:05:56
A:
And I forget exactly about where this happened, and we turned that whole building upside down trying to locate that document. We finally found it in the back of the safe, but not before they had several boards of inquiry and so forth, to make us account for what we, what we had happened done with that safe, with that secret document. But that was the way things were, and it had to be that way, you know.

04:06:21
Q:
Why exactly was security so, so tight like that?

A:
Because at the time, we had, had I believe just one, to my knowledge just one major security leak, and that is the Rosenberg case. Where the Rosenberg's actually gave the Russians our ah, technical information having to do with implosion weapons at the time. There were two types, basically two types of nuclear weapons, the gun type nuclear weapon and an implosion type, and I won't go into the difference. The gun type was much simpler to design and operate but it was very, very inefficient in its use of nuclear material. Implosion type was just the opposite.

04:07:08
A:
Ah, that had occurred, I believe the country's philosophy was that we did not want anyone else learning about nuclear weapons, we were so afraid of them ourselves. But we did cooperate with the British and to a certain extent with the French, ah insofar as technical interchanges are concerned. I can quantify that for you, but when Russia learned how we make nuclear weapons, that created a whole new atmosphere for all of us involved in the business.

04:07:45
A:
And things really, really got tight then, as far as with security leaks and what have you are concerned. I don't know the exact timing of the Rosenberg situation, I believe it was 1952, I may be wrong about that. But they just didn't mess around with it. It was there and you abided and lived by it and never, ever even dreamed of violating any of it at all.

04:08:09
A:
And that, that doesn't apply of course to all my work in nuclear reactors which was entirely unclassified. Uh, except we wanted to do some radiation testing at B&W out in Idaho, at what they called either the Materials Test Reactor or the Engineering Test Reactor, the MTR, ETR is what we called 'em.

04:08:32
A:
And we had to fight the Navy submarine program. The Navy was just up the road, the Navy trained all their nuclear technicians and officers and enlisted men at the Naval Reactor Facility just about 4 miles north of where we were, out in the site out there.

04:08:47
A:
And they had all the good test holes in these two reactors that we wanted to put fuels and materials and so forth in, so we, we had, they had much more clout than we ever had there and so they won and we lost. (Chuckles) But ah, but just a little side item. This was Admiral Rickover's program by the way and course he ran that thing with a tight fist too. And, but ah.

04:09:14
Q:
How about friends and family, how did you explain your job to them?

A:
I ah, I didn't. I could talk generally about what we did. I could say that we had nuclear weapon mock-ups in our possession. We ah, used lived nuclear weapons on Army maneuvers, ah, we were able to take those weapons apart and examine them and inspect them and from at least a nuclear point of view.

04:09:54
A:
I could examine the nuclear components of a weapon and determine that this component is this much off what it should be. And we can't fix it out here in the field, and therefore I had to sit and calculate what the reduced, the reduction in yield from that weapon would be and give that to the Army commander, or up through his staff.

04:10:15
A:
Instead of getting 20 kilotons out of this such and such weapon you're only going to get 17 or 15 or something like that because there's a defect in this weapon which we can't cure at this time. And I could tell them that I did that. I didn't tell them how I did it of course or anything, but ah, that was about it. We could not go into any detail at all on ah, on any of the weapons knowledge you might say, that we, that we possessed at the time.

04:10:43
A:
And ah, we had interesting case at Sandia Base, good friend of mine First Lieutenant Bill Brown by name, we, at Sandia we had military, military Army guards out there guarding the gates. We'd get out of our cars go up to them and hand them our badge, they'd grab our badge turn it around, look at it like this, give it back to us and then salute us.

04:11:08
A:
Well Bill Brown figured these guards weren't looking at these badges at all, they were just going through the motions. So he got a picture of a gorilla out of a book, and pasted it on over top of his face on his badge and when they found out about it they transferred him out of there. He was gone, out of the program, believe it or not.

04:11:30
A:
That might give you an idea just how strictly they regarded those things. They didn't think that was funny at all. And after they got through with him, he didn't think it was too funny either. (Chuckles) But that just gives you an example, how seriously they took, took that in those days. But ah.

04:11:46
Q:
Wow. That's a good story. I've heard people say that about Fernald. They don't look at that, that way. I think, I think they still do.

A:
I wouldn't be surprised.

Q:
Yeah. Yeah.

04:11:59
A:
Course there is a, there is, there are still security concerns. Site security concerns at Fernald out there. I can think of some scenarios that I would not like to see happen out there if I were the president or the manager of the ah, of that site.

04:12:19
A:
Such as people getting in and getting contaminated material and taking it out and doing something nasty with it for example. That, no one can afford, can allow that to happen period. And ah, that, the material that they have nowadays it's not weapons grade material so they, no one could steal material and try to contrive a, some sort of nuclear device of some sort or anything like that, but there is contamination, and that, that can cause just as much problems as, as some of the other more expensive stuff could. Ah, ah.

04:12:57
Q:
Um, in your job at Fernald um, you started in the years, just the tail end years of production, and then moved into clean-up. How did the production years that you were there and the clean-up years differ and what was that transition like?

A:
Okay, ah, my job as, with the 4-A Project consisted of getting design and having fabricated all the facilities and equipment we needed to produce the ingot casting. These ingots incidentally were about 22 inches wide, 2 inches thick and 18 inches high.

04:13:43
A:
Ah, they had to be of very, very high quality material. And by that I mean, no iron contaminants in the uranium, no carbon contaminants in the uranium, and we had to devise the mold stations, ah the cooling stations, the furnace ah, setups in Plant 5, and the, the ingot machining facilities in Plant 6 and the acid baths and so forth and we, that's the kind of work we were involved in.

04:14:16
A:
To get set up to produce these things, and we did that, and we did it successfully. Ah, fortunately. The, in 1989 when production shut down, ah, we were involved for awhile with the disposal of some of the equipment. I understand that some of the equipment was able to be sent off to other sites, DOE sites, for their use. Savannah River being one of them.

04:14:43
A:
And ah, but we pretty soon turned our attention to getting involved in the clean-up effort. Back in those days we were worried, worried about all the paper work mainly to a , to a large extent. Which people still are of course, but ah we had to take extensive training in ah, EPA laws and what have you, and I still have one of my textbooks on EPA Legislation, and EPA Rules and Regulations and Laws that was given to us as a result of a course we took one time.

04:15:22
A:
But we and, we turned all our attention towards that, towards, remember I was in the, might say the process engineering business still in those days and so that, I and the people I worked with ah were involved with setting up the water cleaning system out near where we, we had put up that 64 building out there that the water treatment system is now occupying ah or the area around there.

04:15:49
A:
The 64 building was put up as a result of the 4-A Project ah, and all of the other engineering aspects of the, you know, what it took in the way of facilities and, and equipment and what have you to accomplish the clean-up that's that's what our job consisted of out there so.

04:16:10
A:
There was no longer going into the process area in the back and looking at something that you built or anything like that but rather it a, it was more to the design, and in support of the remediation effort you might say. The design and fabrication and production and so forth of the ah, remediation effort and ah, it's being done.

04:16:33
A:
It's a, being accomplished out there. I was by the, back in, I went in the back gate just yesterday as a matter of fact and I was amazed at some of those cells out there, the size of them, went up 700 feet and ah.

Q:
Yeah, there's a lot going on that across site.

A:
That's incredible, it really is.

Q:
They did a lot of tear down, of course the Boiler Plant is gone, my favorite plant, that's my favorite plant.

A:
I ah, I know that well. I, for a time I put in a complete new water treatment system for the Boiler Plant and ah, we, I shouldn't say we put it in. We had a design built and delivered in the form of a big trailer, we were gonna get rid of the entire boiler water feed system, clean-up ah, and treatment equipment and ah at the last minute they decided not to use it and to ah, 'cause by that time they were thinking of tearing down the Boiler Plant and installing gas ah as a main source of heat out there, energy.

04:17:35
A:

And ah, but ah, I don't know what they done with that trailer out there. Might still be there for all I know, but ah, we ah, the, in those early days we were totally confounded with the, what the real requirements were for clean-up. And that is because the laws, and I can't even think of the acronym for them nowadays, were complicated, they were ah confusing, they were self, were internally inconsistent with each other and what not.

04:18:13
A:
And we had to work under that, that situation to try to make the management the, you know, the Fernald management happy, the DOE management happy and the EPA management happy. And I think both the national and local scale and then, Ohio eventually, the State of Ohio took full charge of the, the EPA responsibility you might say.

04:18:39
A:
So, and even they were tough to, ah convince, you know, to the righteousness of our purpose and so forth out there and I say that ah, sarcastically of course. But it was difficult, it was extremely difficult and ah we're still not out of the woods on it, I'm sure.

04:18:55
A:
But I think ah, the staff out there has come an incredible long way to ah, reaching accord with, with the folks in Columbus for example, on what has to be done, how soon it has to be done and what have you and what, what the scope and intensity the effort has to be to get it done and so forth. And I think the people in Columbus are much more sympathetic to our plight out here than when we first got started. I know that for a fact.

04:19:27
A:
And ah, I'm glad to see that too. That's the function of education, not only us but for them as well. That ah, the older we get, hopefully the smarter we get. And ah, and that's what's happened there of course.

04:19:44
Q:
So it really was a brand new field when we moved into clean-up.

A:
Absolutely.

Q:
Can you give me an example of the time when you really had to think what they call "out of the box" to solve a problem with your particular projects?

04:20:01
A:

Ex, for any given project you mean. That's a function of the complexity of the project. Ah, and I don't mean to avoid your question, but it's a direct function of the, what, what does the end result have to be? What do you have to do to get there? Ah, and so on and so forth. What basic research has to be done to enable you to get the design criteria set-up for whatever it is you think is gonna solve that problem in the form of a piece of machine or what have you.

04:20:34
A:
And ah, I, the preliminary or conceptional design phase of a project usually consisted of about 1/3 of the effort to complete the final design of the project. Not to build the equipment or anything like that but just to do the final design. Ah, to complete the final design of the project. And that's an order of magnitude or course or rule of thumb I guess.

04:21:06
A:
Uh, after you completed conceptual design then the AEC or the DOE wanted you to go into preliminary design at which time you fixed your design criteria and set your goals you might say for the final design effort. Once the final design effort is completed then you hand the design over to some subcontract and say go out and build this machine for us and it's got to be able to do this, this and that you know or else.

04:21:34
A:
But that might give you a feel for how much the design effort. Now there's an awful lot of preliminary site work you can do even before completion of final design, access back in the area where you're going to put whatever you're going to put back there, uh, maybe long lead procurement of parts that are going to take two years and disrupt your schedule and so forth. But those are the exceptions to the rule I'd say.

04:22:06
A:
All this is, we had a very good planning staff that could help us in setting up the project schedule whereby we could set our deadlines to do this, to get accomplished, then finish the project, turn it over to operations and have the operational check out of it and so forth. The planning people are crucial to the success of a project. They can you ask questions that you'd never ever dream of except in a nightmare or something like that and they're good at their job and we appreciated their input.

04:22:38
A:
The financial control folks out there are incredibly helpful to you too, they can tell you you're running behind or you're ahead of schedule and or if you continue on this course you're going to a major overrun or what have you. And they and the planner and schedulers and so forth can should work very closely in conjunction with each other and be able to talk each other's language and be able to talk to a dumb engineer to explain all that to him so that the project gets done on time and under budget hopefully.

04:23:16
A:

I mentioned we built the first cold plant in the state of Idaho to provide space heating and process heating for the chemical processing plant operations. Again, this is where we dissolved Navy or government-owned nuclear fuel and acids and extracted the U235 the feasible uranium and gave that back to the Navy fuel manufacturer.

04:23:49
A:
Uh, we decided to go with a brand new technology called a Fluid Bed Combuster type of coal burner you might say and we were unfortunately located halfway between Valley Crater of the Moon National Park and another place called Yellowstone National Park. We were about 60 kilometers from one and 30 kilometers from another and the EPA at that time just about went bonkers when we told them we were going to build a coal burner out there but we had to because we had some oil fire burners which were 35 years old and had to be replaced.

04:24:30
A:
We started out with this Fluidized Bed Combuster, uh concept which was brand new at the time, to us anyway, and Foster Wheeler was the boiler manufacturer that built the thing. They built it, I was the DOE project manager by the way at that time.

04:24:46
A:
I've got a picture up here of Don Odelle who was the chairman of the, Secretary of Energy for DOE who attended the dedication ceremony out there. Because that Plant was incredible clean as far as emissions of sulfur and flyash and nitrogen compounds and so forth, we just had sulfur and nitrogen emissions under total control and flyash, you couldn't see anything.

04:25:20
A:
In fact when Odelle came out there to dedicate it I was escorting him around and showing off the whole place to him and he looked up at a stack and said that plant's not operating is it and I said yes sir it is. You couldn't see anything a thing coming out, usually on a smoke stack, you know, you can see smoke coming out.

04:25:39
A:
But ours was so clean that we had practically all of the flyash filtered out of it and all the other baddies and so forth. Well I've got a picture on the wall up there where our state senator, national senator and the contractors and me standing there, but that was interesting.

04:26:05
A:
To be able to complete something like that gives you an immense feeling of satisfaction and completion. It's hard to describe and if you don't have that if you're continually interrupted, continually changing the ballgame on you or switching signals or changing from one Plan A to Plan B and then back to Plan C-1 or something like that it is so unproductive or counter productive that you lack this feeling of accomplishment you might say. So you never liked to get involved in one of those, you just like to be involved with successful projects, obviously.

04:26:05
Q:
We hope to feel that way when Fernald's cleaned up. While you were at Fernald who were some of your favorite people on site?

04:26:58
A:
Oh my!

04:27:02
Q:
Or just people you worked with that you enjoyed working with.

04:27:06
A:
I worked with Jim King and I thoroughly appreciate working with him and I worked with Andy McColley who incidentally had come in from Idaho, he had worked for Westinghouse out there and I enjoyed working with Andy, I enjoyed working with Don Herman who was the program manager for the 4A Project. Uh, I can name quite a number of different people, but those three in particular come to mind right now. Another problem you have is when you get to be my age you start to forget some things that you should be remembering.

TAPE FLHP0053

05:01:04
Q:
I think you're doing a great job. All the land that Fernald is sitting on right now, some 1200, 1600 acres whatever, um, what would you like to see happen to the land once plant is not there anymore.

05:01:20
A:
Well we certainly don't want a daycare, nursery located there, obviously. It's possible I think to clean it to a level which would make it acceptable for medium or heavy industry to utilize it. Although that would be a terrible place to put heavy industry out in that beautiful countryside out there, I should say. It could serve as an arboretum type location or, what am I trying to say, with nature trails and things like that and I and I saw the wetlands efforts taking place out there now and I think it's wonderful, it's quite an innovative approach to do with the land out there.

05:02:20
A:
That may not be possible in some of the more contaminated areas where there is contamination in the dirt without an incredible additional amount of cleanup of the dirt and water and so forth. Anything that can be put out there that the surrounding neighborhood can accept such as an arboretum, nature trails sort of a place that doesn't violate the soil to too great an extent that it doesn't require deep foundations but massive upheavals of dirt and so forth up to the surface I think should be acceptable.

05:03:07
A:
I'm at a lose to figure out what else might be done with it. There might be a natural reluctance on the part of the public and an understandable reluctance to do anything with the site except to put a fence around it.

05:03:21
A:
But I hope that they strive out there to turn that into something positive rather than the negative characteristics that people think of it in terms of these days and that they don't have to put a fence around it with an armed guard and so forth for the rest of eternity. Obviously, I'm trying to make my point if you understand what I mean. I don't know, hadn't really thought about that questions, but that's my answer I guess.

05:03:58
Q:
How about, they have been talking very much what you're talking about nature trails and they're also talking about some type of educational center or museum to commemorate the Cold War. So that might be a happening idea.

05:04:15
A:
I think that's an excellent idea. That could be done with a minimal upheaval you might say of the under strait out there. Something, again, I can emphasize the importance of Fernald to the whole national effort in behalf of the national effort due to the Cold War scares we had. Fernald was the one and only source for the material that went into our plutonium production reactions, there was no other source in the world for that that could meet the high degree of contamination chemical as a requirement and what have you.

05:05:03
A:
Had it been for Fernald we would not, I think still having the Cold War bothering us you might say which is a silly way to put it. But people don't realize the incredible importance of Fernald through that whole war effort, the fact that we could out produce Russia, the USSR at that time and our production of nuclear weapons and so forth that caused them to eventually back down and go out of business literally.

05:05:48
A:
They used to call that place the Feed Material Production Plant, I don't know if you're aware of that or not, FMPC. They also had and still do have two large water towers on that site. One's a low level for drinking water and one's a high level for fire fighting purposes.

05:06:07
A:

When NLO was there at the time, both of those towers were painted in a white and red checkerboard pattern, I don't know if you were aware of that or not were you? Well, the story got around somehow or other plus the name Feed Material Production Facility meant that that facility must have been a Ralston Purina Cattle Feed producing company or who knows what sort of a thing.

05:06:38
A:
And the management did nothing to correct people's opinions on that for a long, long time they thought that was a Ralston Purina Oatmeal plant or something like that because of the checkered pattern. Then when Westinghouse took over they painted all the red squares blue and Westinghouse colored them blue and white of course then. But I always liked that story. To this day I imagine there's some older residents out there that might think the very same thing.

05:07:13
Q:
Yes. We've talked to them and they've told us that. There's been quite a few of them that's told us that.

05:07:20
A:
O.K., I collaborate their story. You read my mind because I was about to go back into some of the Cold War things. Um, what was the typical American's mind set when it came during the Cold War, when it came to that threat?

05:07:41
A:
Fear and a need for self preservation. Uh, I think back to the Cuban Missile Crisis for example, when the USSR literally unloaded a number of intercontinental so to speak ballistic missiles in Cuba to threaten the U.S. The USSR then had a nuclear capability then of course, I'm not sure of the timing of that incident, but people were literally digging bomb shelters in their backyards, and putting aside stores of water and food, nonperishable food items and what have you.

05:08:31
A:
I won't say that was rampant throughout the country but it certainly was the main problem being that alright they knock out our major cities, we still have an incredible threat of contamination, fallout spreading across the country. And there's no questions about it we would have had it. We did a study, we ran a nuclear exercise at Fort Polk, Louisiana one time and I was down there as one of the observers of it and judges of it, I'd say, the red commander was on the north side of the Red River the blue commander was on the south side.

05:09:15
A:
The blue commander was, he was friendly, he threw so many nuclear shells in this mock war onto the red side that they had fatal levels of radiation contamination as far north as Pennsylvania and Washington D.C., believe it or not and those were based on very accurate studies. So the fear of fallout from nuclear war was compelling too or of great concern to people. And people were scared and they had a right to be. I'm convinced to this day had we ever, we talk in terms at one time of

limited nuclear war, why I don't think there's such a thing. If you get hit with a nuclear … (tape problem)
05:10:03
Q:
Let's back up just a bit, limited nuclear war is that even a possibility?

A:
05:10:13
You look a little low are you? I can see my reflection in that lens. You've got it centered on my face. Can you see my face? Response: Yes, your whole face… like watching T.V.

Q:
05:10:46
Let's go back to the idea of limited nuclear war, in your opinion is that even a possibility?

05:10:50
A:
Only to the extent that the nations that are involved in it are limited in their weapons supply. Uh, as I said before if you hit me with what I judge to be a 20 kiloton, I'm going to at least send a 20 ton kiloton back to you and if I have a 40 ton in my arsenal I'm going to give that one to you. O.K., by that way we're going to be able to just go hog wild on that thing.

05:11:18
A:
I am very much concerned nowadays about the lack of control in Russia for example, over their nuclear arsenals, they have both the missiles, delivery systems capability and the weapons themselves to an incredible extent. And from what I hear there is very little control to that potential threat to the rest of the world literally. And if they start selling those weapons to countries inequitable to our interest, like Iran, Iraq or you name it, what's going to happen then.

05:12:04
A:
This, uh, this release of the information to China for example is something that I am so appalled about that I don't even want to discuss it right now and I mean that seriously except to say that it's absolutely incredible that it could happen. I won't say anything more about that, but I am shocked. I, they, it's conceivable that it can be a limited war it's not out of the total realm of probability but it's highly, but it's highly probable it can be contained like that, that two nations that want to do each other in would hold themselves back and refrain from inflicting a killing blow on their enemy and that sort of thing.

05:12:59
A:
The only way you fight a war is you fight it to win it, you don't fight it simply to, you shouldn't fight it simply to contain it like we tried to do in Vietnam, for example. For that proved to be a total failure for example.

05:13:18
Q:
And I think a lot of people that are living today believe up to a certain extent that there isn't any, since

Russia has sort of packed up its bags there isn't really any threat of nuclear war anymore. What's your attitude towards that?
05:13:34
A:
I can see the logic behind that thinking, uh, we still have enough of a nuclear threat in this country that is capable of reaching almost every part of the world, well every part of the world with consideration of submarines and stuff to do far more damage to any other country than they can do to us. The real threat comes in nuclear terrorism, the ability to smuggle in a nuclear device in several suitcases for example or shipping crates or something like that. The potential ability for countries that are considering themselves our enemies.

05:14:26
A:
Being able to obtain that technology, now we have Pakistan and India, both with nuclear capabilities for example, uh, it was unheard of, of course back in 1940's, '45, before we developed weapons. We have a potential for nuclear weapons in Israel, no cut that, uh, of course, France, China, North Korea may have nuclear weapons, England certainly has them Great Britain, uh, the genie is out of the bottle, you've heard that trite old phrase. Idealistically, I would think that people should, could come to the realization of the enormous awfulness of nuclear war and say to themselves we just simply can't afford to allow that even on our own behalf not to mention others.

05:15:46
A:
Uh, because it would be totally catastrophic, I'm kind of wandering around here.

05:16:02
Q:
Oh, that's fine I just wanted to get your take on that. Uh, just one last question, from a Fernald standpoint how did you feel in 1989 when you started seeing some news coverage of the wall coming down? Because the wall was such a symbol of Russia and the Soviet Union? How did that make you feel from a Fernald standpoint?

05:16:28
A:
From a Fernald standpoint? Humph, I didn't associate that directly with Fernald, I had been in Germany when the Cold War started. Berlin was isolated and so forth and we were flying material into Berlin just to keep the citizens alive there. I was stationed in Heidelberg, Germany for about three or four months there with the Army. To see that wall come down was absolutely incredible. In fact, Nancy gave me a went out and found a piece of that wall and I have it sitting on my desk over here. It's in a special little case and what have you in commemoration of that wall coming down. I don't know what I had thought might happen to the USSR at the time if that did come down.

05:17:26
A:
Uh, I really hadn't thought about it that much, but I was just absolutely happy that the wall was coming down that uh East Germany and West Germany would be ultimately be reunited and what have you. But none of us dreamed that the whole eastern block would suddenly throw over Communism, try to go their own way so to speak. I'm talking about Romania, Yugoslavia, East Germany, Czechoslovakia,

Poland and what have you.

05:18:05
A:
But, it was a great thing that that wall did come down because of what the symbolism of it was that no longer would there be them and us. I didn't know that at the time but that's the way it has turned out, of course, thank goodness you might say. Now if we can only keep it that way. But Fernald, getting back to Fernald's contribution. Fernald was one of the places that enabled us to come out on top of the Cold War. Los Alamos was, Sandia Base was, Lawrence Livermore Lab out in California was, they all contributed, of course, with weapons designs and so forth.

05:18:54
A:
The various other weapons sites throughout the country, Amarillo and a place down in Florida - Penilla, but without Fernald that couldn't have done it. Because we were the basic feed material from which all the plutonium was eventually bred. Our U-238, very high pure U-238 was sent down there, put in a reactor where you had a lot of neutrons running around inside this reactor.

05:19:30
A:
The U238 would capture one more neutron and become plutonium U-239 which is a fissionable form of plutonium. You also got PU-240 in there which was nonfissionable but then you PU-241 which is fissionable as well. So extracted the 239 and 241 to make our nuclear weapons stockpile.

05:19:54
A:
That's how important Fernald basic and feed material was to the effort there and without that 238 they could not have done it and that's why I have such high regard for what Fernald was able to accomplish, most of it before I got there incidentally and very little of it after I got there but I'm proud of what those guys were able to do.

05:20:17
Q:
Great. Well is there anything that you would like to add? Anything that we didn't cover that you wanted to cover.

05:20:24
A:
I think you just about covered my life from stem to stern here as it is.