

**Nevada Test Site Oral History Project**  
**University of Nevada, Las Vegas**

**Interview with**  
**Paul Guthals**

**April 14, 2005**  
**Los Alamos, New Mexico**

Interview Conducted By  
Mary Palevsky

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Produced by:

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## Interview with Paul Guthals

April 14, 2005 in Los Alamos, NM

Conducted by Mary Palevsky

[00:00:00] Begin Track 2, Disc 1.

**Mary Palevsky:** *Mr. Guthals, thank you so much for meeting with me today. And I thought we could start by you saying your full name, place of birth, date of birth, and some of your background and how you ended up being here doing the work that you did.*

**Paul Guthals:** My name is Paul Robert Guthals, and I was born in Fowler, Colorado, which is thirty-five miles east of Pueblo on the Arkansas River. My father was a certified butter maker. And he went to work for Trinidad Creamery Company. And if you have been around New Mexico, that's one of our big butter makers. They make Colorado Gold, and it's for sale in grocery stores. But anyway, eventually he went to New Mexico, Clovis, and started a butter making plant there for Trinidad Creamery. We came to New Mexico in 1932. And I so I've been around a few days.

*What year were you born, again?*

Nineteen twenty-nine. My dad was the manager of that creamery company and was doing that until the year I graduated from the ninth grade. Then he and my mother started their own business, and they were buying cream, eggs, poultry and so on; we had a poultry processing plant. We did poultry processing and sold a lot of our poultry and eggs to the Department of Defense [DoD], if you will, facilities that were around us. We had a small battalion that was hooked up with the railroads because Clovis is one of the big centers on the old Santa Fe freight system; then we had Cannon Air Force Base, which is still in business. And so, I got acquainted with a lot of people, and I worked in my family's business until I essentially went with Uncle Sam.

During the Korean War, I joined Uncle Sam's Army and went to basic training, and eventually to Officer Candidate training. I became an infantry officer during the Korean War, even though I didn't have to go to Korea. I was in the 37<sup>th</sup> Infantry Division, which was a former National Guard division, had been to Korea and came back, Ohio National Guard, and I was a company commander there.

And so I took care of those details and my commitments, and then when I finished up my tours, I went back to school. And I went to Eastern New Mexico University and I was in mathematics and chemistry. So I was looking for a job once I got all that done. And my wife, Gloria, and I—before we got married, I was a National Guardsman down at Fort Bliss, Texas—I came up to visit her one weekend and we drove up to Los Alamos, and it was just soon after they took the gates down [February 1957]. And we came through the Valle Grande and in—the personnel office was where the police station is now, by the pond. So I stopped in there and had a conversation with one of the personnel people and he says, *Oh, here's your application. We want it back right away.* And so, I took that home and I sent it in right away. And [00:05:00] in those days, it was, oh, two to four weeks, probably, before you could get your Q-clearance. Well, I went home and helped in my father's store for a little bit longer, and I waited, and I waited a little over a month and I didn't hear anything, so I thought, *Wow, something's wrong here.* So I called the Los Alamos personnel people and they said, *Oh, yeah, you did everything right and we have sent it in.* The AEC [Atomic Energy Commission] in those days were the people who did the clearance work. And it was being handled out of the Albuquerque, New Mexico, office. And so they said, *Here's a phone number of a person down there. Why don't you see what's going on with them?* So I called, and I said I

had a top secret clearance when I was in the service, when I was on active duty and I was still a Guardsman with my clearance.

So when I talked to this person down at Albuquerque he says, Yeah, we requested from the Department of Defense your history on your clearance and everything, but we haven't received it.

And I said, Well, you haven't checked with anybody?

[And he says], No. No.

And I said, OK.

And I still had a few connections here and there, so I called up and found out that indeed the Department of Defense had sent my records about a week after they got the request, which was about a month earlier. So I called the guys back up here [Los Alamos] and in Albuquerque and told them what I found out. They did still have copies of my original records, so they put in for my clearance paperwork again and in less than two weeks, I was up here without my clearance, without my Q. So I spent a couple of weeks in the library, which was in the same building.

And then I went to work at the lab, after I got my badge and everything. And my predecessor, who was supposed to be around about a year and get me into the business, left in a month-and-a-half. And here I am, faced with an overseas operation with a month-and-a-half exposure, if you will, to the test program, but mostly local.

*Let me ask you a question. Yesterday on the phone, you mentioned that you were a "Downwinder from Trinity."*

Yes.

*I'm wondering if we could go back a little bit to what you knew about during World War II, because that's interesting because then you end up here post-war. So let's go back.*

OK. They actually did Trinity, I think I was still a senior in high school, and we did not have any information on what was going to happen.

*And you're living...?*

In Clovis.

*In Clovis, still.*

Which was downwind. And so a day or so after they did Trinity, I already had a driver's license and everything and I started going out on one of the knobs north of town, looking for Trinity 2, of course, which never happened.

*So what was the—in Clovis, did you hear something? Did you see something?*

No. We had no indication that anything had happened. None whatsoever. And we were completely uninformed.

*So when you say you were looking for Trinity 2, what was that about?*

Well, they still weren't advertising anything they were going to do, and they had just barely said that they did Trinity.

*So there was some indication that something had happened.*

Yes. And of course, it was seen by people if they happened to be up, but it was early in the morning and so not many people saw it. And they did not have a lot of downwind checkpoints, if you will, or sampling stations on that event. Later on, at the Nevada Test Site, as you know, we had a lot of sampling ground stations in addition to our airplane sampling. Well, since they [00:10:00] didn't tell us that anything else was going to happen, I just went out to the "Knob" because I knew from what I had read that if they did another one, I would see it. And my later experience, you know, yes, I hid my eyes when it went off because I was airborne when we set

them off. And so I had to learn a lot about what could potentially happen to you from one of our explosions.

*Just another past World War II question. You're aware of something. What kind of connection, if any, do you make once the actual atomic bombings at the end of the war take place? Do you connect with what you knew had happened near you or—? I'm just curious how much information you had.*

Yes, eventually—well, you know the boys' ranch [Los Alamos Ranch School] was here and was taken over by the Corps of Engineers, and that's what it got started before it was Los Alamos Scientific Laboratory, is what we were called early on, not Los Alamos National Laboratory.

Well, yes, I was at—I don't know whether you know where Battleship Rock is or not, but if you go down the back road to Jemez Springs—

*Yes, I do know where that is.*

—to Albuquerque, well, Battleship Rock is a big monumental chunk of rocks on the left-hand side of the road as you're going south. Well, I was there at summer camp, which was right across the creek there. That's where the two Jemez streams come together, the east and the west, to make the one Jemez River. Well, yes, I was there when they did Hiroshima and Nagasaki. And I had a humongous big portable radio and that's how we heard about these two detonations. And of course, we knew something was likely to happen again but once more, we were not in on any of the details. And I think maybe I was in my dad's car on that one or another one—where Sandoval County comes up to what's now Los Alamos County—there was a cattle guard and a gate, and that was as far as you could come up past the Valles Caldera. You could not get into Los Alamos. And State Road 4, which was later open and there was a guard station on the back



road. I don't know whether you know where that is or not. You go out the back road here up from the lab, go around, and the check station is still there but it's not active.

*I was just looking at an old map of how things used to be around the lab, so I'll go check that.*

And that was there even when they had the gate up the road there and you couldn't come down State Road 4.

I came back, went to school, finished up my degree work, and was looking for a place to go to work because I didn't want to waste my degree work working in my dad's store.

*So this time you could come down from Jemez Springs. Was the guard gate is still there when you come to get your application?*

The building was there but you could drive in and come down what's now Highway 501 and come on down, cross the bridge, and come into town. And that's when I came to the personnel office and they gave me the application "paperwork" and said, Get this back to us quick as you can.

*Now when you're applying, is there a specific position or it's just a position at the lab?*

Well, yes, they told me a little bit about it before I sent my application in, and so I had some idea, a very brief idea, and like I said, I didn't even meet my predecessor till I came up to work.

*And what was, not the official name, but what was the position called or something?*

**[00:15:00]** Well, I was the Project Leader for Nuclear Bomb Cloud Sampling.

*Right away. That was your first position.*

Right away. Yes. I came up in November and my predecessor left the first of January, and we went overseas, I think, in April or March. And yes, that was a big splash in my life and a tremendous responsibility. The squadron in Kirtland [Air Force Base, New Mexico], at that time I think we had about three hundred people, and in my position they essentially, all worked for

me. Even the squadron commander was, at that juncture, was a major. Eventually we had a lieutenant colonel and a colonel being the squadron commander.

*But you're a civilian at this point.*

Yes, always.

*Always a civilian. And were you a flyer in the Korean War? Did you yourself—?*

I went to pilot training after I was discharged from my full-time job. I was still a Reservist. And then when I came back, I became a National Guard member and I had a group of helicopters, so I had helicopters in Santa Fe's airport. And while I was still at Fort Bliss, I was in school there.

And so I came back up to check on my helicopter things and one of my pilots says, oh, do you want something to do tomorrow night?

Saturday.

And I said, Oh, well, maybe so.

And he says, Well, let me see what I can do.

So at 7:30 Saturday morning he called me up and says, Oh, I want to take you over to meet this young lady.

And I said, Oh, no blind date, huh?

And so he comes and picks me up and we go over to—Gloria was living with a couple of other young ladies at that time. She was working in Santa Fe. And anyway, we went over to their apartment, and the reason behind this was she wouldn't go out with anybody who was shorter than she was if she had her heels on. And they were wearing heels like that [indicating height] in those days. So we went over, and the first thing she wanted me to do was to back up to her and see how tall I was.

*That's a good story.*

Well, that was the beginning. And it was after that, I was still at Fort Bliss when we ran around and I told you about going to the personnel office. And we didn't get married until about a year later. Then I'll come back to that in a minute.

The reason I was going to Fort Bliss was at the time I was a captain and I was in school so that I could be prepared to make up through full colonel. Well, I did that, and then they changed my organization from the one I was in to an ordnance outfit. I was the commander. That unit was given notice that it was going to be activated and sent to Berlin in the last Berlin crisis. Well, the National Guard in their [00:20:00] infinite wisdom sent the laboratory a government employee questionnaire. We were not government employees. We still aren't.

*University of California employees.*

That's right. Well, I was a State of California employee, and I'll get to that in a little bit. So were some of these other people you've already interviewed.

Well anyway, they sent that, and the laboratory in their infinite wisdom answered it. And so since I was not—well, no, I was going to be going overseas on this laboratory mission and they put that in their response. Well, in less than two weeks, the National Guard had kicked me out. They'd kicked me out in my then-current educational level and rank and everything, and the standby Reserve says, *Oh, hey, you're not qualified in this group, so in less than two weeks I was out of the Reserve unit. So then I came back and did my overseas thing and—*  
*Now what was that were you going overseas with the lab, what was that job?*

The one I mentioned, as the Project Leader of Bomb Cloud Sampling.

*Right but—*

What was the program? What was the—?

*Right, what was the deal? Can you tell me about that?*

I think that was [Operation] Hardtack I.

*So you're in the Pacific.*

Yes. I was at Enewetak. And we had our airplanes from Kirtland and we took them with us and, of course, we sampled devices that were at Bikini also, and we did them in Enewetak. And then later on, we had sort of a second edition and—now I'm in the wrong operation. But we did do some work out of Johnston Atoll. And of course we began by going to Hickam [Air Force Base] in Hawaii and then on down to the South Pacific.

*But walk me through a little bit what—you said you were thrown into this. The guy that was supposed to here a year was only here a couple months. Walk me through so the layperson could understand what that means when you're in the Pacific and you're going to get these samples.*

Well, being the Project Leader, I had a very broad responsibility. First off, I was responsible for collecting the samples that we had predetermined how much of the fission debris or how much of the bomb debris did we need. And also, we wanted to have representative samples. And so, as I mentioned earlier, I was airborne when the detonation went off.

*Yes, tell me about that a little bit.*

Well, the main reason for that was so that I could see how the cloud developed and how did the wind shear it, and where did—direction did it go. And then also I needed to have some idea of what the radiation levels were going to be for my sampler people. So we did all that, and started sampling usually on a smaller yield one, at about thirty minutes to an hour after the detonation.

*And how does that work? Then you're sampling. Tell me what that involves technically.*

Well, the sampling was about what had happened radiologically in the detonation of the device, and in that we could determine the fission yield, if you understand [00:25:00] what that is. And eventually when we got into more detailed devices in the hydrogen bombs, so to speak, we could

have some idea of what happened or didn't happen in producing the hydrogen bomb part of that explosion. And so what we did with the samples, we would pick them up and what we had—you're going to get that video and what I told you about, right?

*I will. You just have to tell me how and I will.*

It will give you how things were supposed to be done. Well, all right, we would come back to the—

*Wait. One question. I'm a questioner when I don't understand. You physically fly through the cloud in half-an-hour to an hour, and the samples are being picked up through filters, is that right?*

Yes, I was getting to that.

*OK, good.*

Yes. And you'll see this in the film, we had had several other airplanes. This one, when I started, was with the B-57 B model, which was a two-place airplane, two engines, and we had samplers out on the wings—

*That's what I wanted to know.*

—that were thirty inches in diameter, and we controlled them from the cockpit. And so when I would direct somebody into the cloud, I wanted to know, first off, where they were relative to what; I might not be able to see them because when they flew into the cloud, sometimes they'd be visibly lost. And we had radiation detection equipment in the airplanes: an integrating dosimeter, which is the same as what your film badge is, and we had a rate meter in the cockpit which told us what we were being exposed to—

*A rate meter?*

Yes. That was R per hour. And then we had a second rate meter that the detector was out in our sampler, and so when we opened the sampler valve up on the front, we could see whether we were getting some radioactivity into the sampler. And of course, my responsibility was to get the crew in and out, first, safely, and secondly, with the desired sample. And we determined the fission sample size before we left the cloud. We had experience on earlier tests, and the radiochemists and I would get together and determine what the crew exposure would be, and that was the big issue.

*Before you left here, literally, the lab.*

Yes. We would do the prediction, and then that was one of my responsibilities—to, in the pre-flight briefing, I would tell the crewmembers what to expect and what their upper limit was. And I didn't want them to exceed that limit because we had an overall operational limit on the number of Rem [Roentgen Equivalent Man] that we were going to be allowed to do. So when they had fulfilled my need, I would send them back to the base. And then at the base, and you'll see this in the film too, we had Air Force people doing the sample recovery.

Now much earlier, there was something which spooked me big time. And, of course, [it] prompted me to take my job very seriously with my Air Force personnel who I was totally responsible for, flying safety and radiation safety. What prompted some of that was very early on, we used B-17 drones to sample. And in those times, the people in our lab were responsible for removing the samples from the airplane. Well, on one of those flights, the drone got [00:30:00] back and the paper got away from them, filter paper, and the lab sample recovers it and stuffed it back into the lead pig, eventually. Well, they got very significant beta burns on their hands. And one of my friends still, and other people who were at the lab in radiochemistry in those days, still live here, my friend's biggest finger is about as big as my little one. They did

skin grafts but they couldn't get them back to how they were before. Well, that of course gave me a real experience to present to my people to keep them careful. They wore radiation protection gloves and special clothes. And in the case of our airplanes, we had the thirty-inch samplers and they had a ring like this on the filter holder.

*That's about, what, maybe two inches round, isn't it?*

Oh, an inch or an inch-and-a-half. And they had a long pole with a hook on it. And they would go up, and we had the thing, you might say, locked in, and they had holes like that, too. So they would unlock those and then pull the filter out and carry it on the end of this long pole and put it into what we called a lead cave. And it was about this tall and the walls were about this thick.

*Just so I can remember this, this is, what, maybe three feet tall, you're saying, and maybe how many inches thick?*

Oh, it was about two or four. Yes. And on the end of that, we had the "pig," we called them, the lead container that we were going to put the samples in to use them when we come back to the lab. Well—

*So the lead cave holds the smaller lead pig, is that what you're saying?*

On the end. All of this will show up in the film. You've got to get it.

*I'll get it, I promise.*

When they had it in there, we had a prong thing, and we had the filter paper in two pieces, halves. So we'd reach in and roll it up on this and then push it into the pig, and we had a thing that we could push the filter off of the hooks into the pig. And then we had a long handle with two people that they would take the pig, one on each side of the cave, and move it up to the front end of our trailer, so to speak. Then they would take us out of the cockpit as they would the samplers, on a pallet on a forklift. They would drive up there, we'd open the canopy, and then

we'd get our records and everything and get out. Then they'd haul us to the cleanup room, if you want to call it that, where they would monitor us, check our clothes and everything, and if we were "hot," we would get into a special shower.

*This is both in the Pacific and then at Nevada, the same procedure?*

Yes indeed. In Nevada, we were flying out of Indian Springs Air Force Base, and I have something else to tell you about that a little while later.

Then we'd put the pigs into a box and that was what we would send back to Kirtland on an Air Force transport. And I don't know whether you've heard of CARCO or not.

*CARCO. OK, you tell me.*

They were the airline that transported people, mainly, between Albuquerque and Los Alamos. But they also took things out to the test site and back. Well, so when we'd get the sample there, they'd pick the boxes up and fly them up to Los Alamos if the weather was good. If [00:35:00] not, they'd have a truck pick them up and bring them up. And unless you have a badge, you can't get out to where the radiochemistry lab is.

*Here.*

Yes. It's on Pajarito Road, if you know where that is. You go south on Diamond Drive to where it turns left. That's Pajarito Road.

*Yes. Right.*

And it's the first site on the left-hand side of the road.

*I've seen the area, I know.*

There's a stoplight there. On the right-hand side is the security force people. On the left-hand side is the radiochemistry lab. And that's where the pigs would go to, and Chief Scientist there would look at my records and decide which ones of the samples they were going to analyze. And



typically they wanted a good sample. We made radiation measurements while the samples were still in the sampler so we could compare that with previous samples that we had collected in there and that we had done the analysis on, so we had some better idea about where the good information might be.

*And the Chief Scientist is looking for what kinds of—he's looking for information about the reaction itself?*

Yes. See, sometimes we'd put tracers in there and then they would get activated by the nuclear reaction and that would give us a better idea about what fraction of the debris did we have.

Actually the radiochemistry thing is pretty complicated to go in, and like I say, the original thing of doing the fission measurements were to say how the fission part of the bomb went off. And of course before we went to thermonuclears, they were all fission. But when we started in the thermonuclears, we had to get smarter, and so that's why we did some of the more complicated detection things and analysis of the samples that we gathered.

*But just so I understand the nuts and bolts of it, the filters—oh no, you already told me, you might put tracers in there as well.*

In the bomb. Yes, and we collected it in the filter.

*In the filter. But the filter basically is the filter. Where the complication comes in is your analysis?*

Yes. [Lawrence] Livermore [National Laboratory] and an Air Force organization wanted to look at the particulate air samples, the gas samples. And so we had pumps and collected those samples in spheres like this, and pump them up to maybe 1,500 psi [pounds per square inch]. And typically we here at Los Alamos did not do analysis on those gas samples, we called them.

*That was Livermore and Air Force, you said?*

Yes, we worked some with the Air Force, and the samples that they collected from other people's activities were analyzed in their own laboratories. They do not have those anymore, and all of that work is done here at LANL.

*Now.*

Now.

*So the military, the Air Force, is looking for different kinds of things, maybe, than the lab is? Is that why they have their own laboratories early or—?*

[00:40:00] No. There might have been somebody that just wanted to be independent. They did a lot of the same kind of analytical work that we did, except their samples typically were collected much later. I flew on a couple or three of their missions, and as I mentioned earlier, I felt very strongly about the RADSAFE [radiological safety] safety of our people. When I flew with them, I found that they were less worried about that than we were, and they would open the sampler up in the airplane and pick the samples out and put them in a container. And I just went all the way to the top in the Air Force command and said this is not acceptable. And unfortunately, this was not at the beginning of their project, time-wise. It was pretty late. And as you may or may not know, the VA [Veterans Administration] has radiation exposure-type programs for former military people.

*I do. That's right, yes.*

Yes. And I have only worked on one of those, and if you're interested in that I'll tell you about it.

*Yes.*

Well, this is much, much later. It was about the time the Chinese were doing their first thermonuclear. And there was a B-47 from a base in Puerto Rico. And one of my former

squadron commanders, was there at the time they sent this airplane out to Yokota Air Force Base in Japan. I can't tell you what their mission was because I don't even know what they were supposed to be doing. And if I did, I couldn't tell you. So they left from Puerto Rico and they went to Japan. And the VA claims report that was submitted by one of the air crews' wives, because he was dead, said that there was a civilian and an Air Force person met them when they got to Yokota. So this former sampling squadron commander says, *Oh, that civilian has got to be Paul Guthals.* So I was asked to work on this claim. And there were several things that were very troublesome about the request. By this time, the Chinese had already shot down two of our U-2s. And the B-47 flew at about thirty thousand feet lower. And so if [he] went in to the Chinese area, it would be surprising that he made it back out. Well, anyway, when they got back to Yokota, according to the report, they were forced to stay in the airplane for over an hour after their landing. Well, this former Air Force group that I told you about earlier had one of their laboratories at Yokota, and they were still active, and they would have been all over that airplane with a fine-toothed brush if they'd thought it had been radioactive hot. Well, anyway, this gentleman who was being claimed was a four-pack-a-dayer, and died of lung cancer. And the other information that they had in the request just didn't support that he had had inhalation of active debris. So unfortunately for his widow, I couldn't give it positive support.

*Right. And the mission had been at the time to get information about the Chinese bomb.*

**[00:45:00]** Well, yes and no, even though the mission of that particular airplane was not verified to me.

*I see. Yes, that's what you said.*

Yes. And the other people, if there was a bomb, would have been on top of it early on, because of their mission, they looked at the Russian shots, they looked at the Chinese shots, and if the

Koreans did any, they might've been on that also. They *barely* got stuff on the Indian and Chinese and Pakistanis. We did the work here on the samples. That's how I know about them.

*Yes. But your point, I think, when you started there was that you were very concerned about rad safety.*

Yes. Very much!

*And observed less concern when you—*

I have some more things to say about that, too. And a lot of these things you'll see in the film.

Even though it was a training film, it's very direct to the RADSAFE responsibilities. And the airplane skin, of course, was contaminated also. And the biggest contamination feature was the

jet engines because, as you know, the air goes in and they have various stages and they're

thermally hot, so things would stick. Well, when the planes came back, after the samples were

removed we wanted the planes decontaminated as much as possible, and our samplers. Of

course, the samplers were technically my biggest responsibility, were they clean? And so after

they cleaned that, we would do swipe tests. We'd swipe inside, and of course we couldn't get

into the engines, but we'd do it on the airplane, too, and we could tell whether we were clean.

And we developed special cleaning solutions to use on them that were designed to, if you will,

“grab the contamination and isolate it” so that it was not accessible for transfer to other things or

Air Force people.

*Interesting. It's a chemical kind of thing that you did.*

Yes, we used big, I guess they had to be called airplane cleaning devices. They were like big fire

truck tanks. They were high pressure and we put the chemicals and water in there, and that's

what we would use on the airplanes. Now there have been Air Force questions about where did

this contaminated water go. And we had a conference at Kirtland a little over a year ago about

this so that they could worry about these other airplanes that I told you that the Air Force flew to collect other countries' debris. They were from different bases all over the country. If they used any of our good cleaner, it's not clear. And so there may be ramp wash sites that had problems.

*Ramp wash sites?*

Where they would wash the airplanes.

*Oh, I see.*

So that may still be a little bit of an issue. Well, coming back to our airplanes, and this was, I think, when we were at Christmas Island. That was the last overseas big series we did. I was always on the ramp watching what our airmen were doing. I was walking down the ramp this one day and here's this young man sitting straddled on the engine with a critical part of his body in contact. Well, in ten seconds he was off, I can guarantee it.

**[00:50:00]** *What did you do?*

Well, I said, That is the hottest place on the airplane and you are exposing a critical part of your body there. Get off now! And I never saw anybody else do that. And like I say, I was watching how the people cleaned and how they worked on the airplanes and all of that because that was part of my responsibility. And on that particular series, eventually we flew out of Johnston Atoll. We didn't fly out of Christmas Island anymore. And they were doing air drops, and so we'd fly our airplanes out of there and then we'd come back and recover in JA [Johnston Atoll]. And I think it was in that same operation when they did some high altitude detonations on rockets.

*Oh, really.*

Yes. And they had one or two that pre-detonated, and so I was given some of the responsibility to see what the contamination on the atoll was. So that was a different part of my activity.

*So they had samplers on the atoll itself or—?*

No, but we took rub samples and fallout samples and brought them back and did chemistry on them, too.

*What did you find?*

Well, most of it went into the water and we didn't get many samples and I don't remember what the details of the collections were, because we put them back in the lead pigs and sent them back to the lab. There probably are archive reports on that.

*Got to be. During the detonations or after the detonations—well, I guess I'll ask you this first.*

*You're the manager of all this. You're up in a plane but is your plane flying into the clouds ever or are you observing?*

Yes.

*You are.*

Yes. We needed to have a certain number of samples, and if some of our planes aborted, we had to sample. But of course we got initial exposure just when the thing went off because the betas just took off. And yes, we did that. And at the test site, there was one part that was not bomb-connected that we did a nuclear rocket program here. You may have heard of it.

*Yes.*

It was at Jackass Flats. And we were sampling what came out of the exhaust because the rocket engine was pointed up and the exhaust effluent was going straight up. Well, one of the events before the rocket was tested, we had a lead-protected radiation detector that was pointed up at that, at this exhaust of the engine. And it was the time, I don't know whether you're familiar with this or not, but we had one of the reactor tests previously that the hydrogen in the reactor cover exploded.

*Yes. I've heard that story.*

We had people in the “shed.” Well, had we been outside we would have been hit by the building’s sheet metal. Well, fortunately—I don’t know whether you know George Cowan or not. He was the group leader and then eventually the Chemistry Division leader. Anyway, he and I were working on [00:55:00] this detector, but we’d gone around to the front of the control house, where they had the reactor hooked up to, when this explosion went off, so we didn’t get hit by any of the sheet metal. Thank goodness.

Well, then there was another experience on with the reactor. We would fly down low while the reactor was going and the exhaust was going up and take samples of the exhaust for radiochemistry again. And this one time, and I don’t know whether you may know about this one or not, one of the fuel elements of the reactor came loose and went up in the exhaust. And I don’t know how big it was, but fortunately, we had made a pass and we were coming back around for another one and we saw something go up. So we didn’t make anymore passes on that event.

*I guess not. It looks like it was a pretty big piece that you’re talking about, maybe a couple of feet across—*

Well, I don’t think it was a couple feet. I don’t exactly remember the shape but if it was a fuel rod, it could have been this long and that big around or something. I don’t know whether there are pictures of that or not.

*I can find out when I go back to Nevada.*

I took pictures of my own and I might have some of the exhaust going off, but I’m pretty sure I don’t have that one. And mine are slides.

Coming back to the nuclear detonations, we of course did them in several different environments. Some were on towers and some were on the ground and so on. And later on, when

we weren't doing atmospheric, the Public Health Service was supposed to have airplanes with monitoring equipment so that if there was something that came out of the hole, they could track it. Well, they didn't have their airplane right away, and so since we had radiation detection equipment and sampling equipment, we would go out and fly on those events. And one Saturday afternoon, we were out there and had made several passes over the ground site, and we'd fly at about fifty feet in our jet. And about a mile north of CP-1 [Control Point 1], and do you know where CP-1 is, on the south side of Yucca?

*Right.*

Well, about a mile north of there, on the west side of the highway, was a 500-foot steel tower. And it had cable guy wires that were to a hundred feet from the top. And we had made these several low-level passes and *bang*, we hit something. In the Air Force official report—I think, unless it's been modified and I don't think it has—said that we hit one of the guy wires. Well, like I mentioned earlier, they were attached a hundred feet from the top of the tower, which meant we'd have had to be 400 feet. Well, we could have done that. But it knocked one of our samplers off of the right-hand wing, and they were held on with stainless steel bolts one inch in diameter. Well, eventually I went out and found the sampler on the ground. And there were no striations on it. Now the airplane, the windscreen in the front got fogged up completely because a cable did hit it, and we had striations under the wing. But anyway, I went out and I found the sampler and it had just a straight-in ding on it in the stainless steel nose. And I found the remains of the top of the tower and it was a steel [01:00:00] C-channel that was like this going around it, and that's what we had hit. And we knocked the tower down and the cables busted and that's what raised the cables up like that. Well, as I mentioned earlier, we were flying out of Indian Springs but Indian Springs didn't have much in the way of emergency equipment, so we went



down to Nellis [Air Force Base] and landed there. And Saturday afternoon and the officer in charge of the flight area, but he wasn't in charge of us, we landed and he wouldn't let us out of the airplane because he said we were hot. Well, I finally convinced him that I had three radiation detectors in the cockpit with me and no, we were not hot. And I said, *If we are hot and you leave us in here, you're more complicating the problem.* So he finally let us out. And in that particular case, I don't know whether you've run into anybody to tell you about Al Graves or not.

*Yes.*

He was the division leader and he happened to be out there that Saturday afternoon in the CP. And I knew that because I'd also been in on the pre-event briefings and everything. The Air Force people ran the aircraft control room, you're going to call it that, control point. So I asked for Al to come in and talk to me on the radio so he would know, yes, we had hit the tower but we were safe. We were supposed to be in Albuquerque that afternoon afterwards, and Gloria my wife was waiting for me in Albuquerque and I just figured it'd be on TV that there was an airplane from Kirtland that had had a wreck. And so I asked him—I gave him the phone number, she was with her mom—I gave him a phone number and he called her and told her that I'd had a problem, he didn't tell her what had happened, but that I should be home by seven or eight o'clock. And he did call her.

So you've heard about two of my close calls.

*Yes. Now do you remember the year of the test or approximately on this so I can look this up?*

It's when we were doing the underground tests. Early in that series.

*OK. Early in that series.*

Yes.

*I'm sure I can find the reference to it.*

Yes. If I go look at my records, I could tell you exactly when it was but—

[01:02:51] End Track 2, Disc 1.

[00:00:00] Begin Track 2, Disc 2.

*So two out of the three. You've told me two of your close calls. Did I interrupt you? I did that.*

Yeah. No, I didn't say I'd had three.

*Oh, that was my mistake. You told me two.*

If I had other ones, they were not anywhere near as serious as this. And my sampling equipment is mostly at Jackass Flats in one of their empty buildings. Well, we eventually jacked up the canopies of some of our old airplanes and drove some new ones in under it, essentially. And they're called B-57Fs. And they'll fly to almost seventy thousand feet. And so we still have two of them. The rest of them went to the base at Tucson [Arizona] where we send all of the spare airplanes.

*But you're saying these others are out at the test site still.*

The equipment is.

*The equipment. The samplers.*

The sampler planes are not.

*OK, just the samplers.*

Yes, the samplers and the radiation detection equipment and so on are out there. And the two airplanes that we still have are at Johnson Space Center, and NASA [National Aeronautics and Space Administration] is hopefully flying them and taking care of them. And we just had what we called a readiness study, and it was done by Summer and Associates out of Santa Fe [New Mexico] by one of the later-on people who worked for me.

*Oh, really. Who was that?*

Allen Mason [sp]. And I went in and talked with one of my radiochemistry associates at TA-48 after this. I wanted to see what the details of it were.

And he said, What are you doing here? He says, You don't live here anymore, do you?

And I says, Yes, I do.

And he says, Boy, I wish I'd have known that. I'd have had you do this study.

Because as a visiting scientist, all they'd had to do is pay my transportation, and they paid these people over two hundred thousand dollars. And after reading the report, they didn't get all the answers.

*Now explain to me, it's a readiness study, so why are they doing the readiness study in your field, in your part of the program?*

It's an "if." For one thing, and this has been in the public—some of the others I can't talk about, but you know you've heard about needing earth penetrators?

*Right.*

Well, that was one of the things that we might have needed to test. And there's still work being done on that at the laboratory.

*So I'm understanding that if some kind of testing needed to be done, some kind of sampling would need to be done.*

Yes. If it's atmospheric. And some of the things that bothered me in the review was there's only one person that I could see in the list of people that was there when we made the deal with NASA that was still there, a pilot; the ground crews, maintenance and everything, totally different. And that bothers me.

*Because—?*

Because they need to know how to do the radsafe stuff, for instance, or what they need to watch out for. And I don't think they know what a radiation detection instrument is. And of course the people that would be doing the flying, we could probably bring them pretty well up to [00:05:00] speed, but if it was a short-notice thing, we'd be in sweats.

*So what I think I hear you saying is that a lot of this knowledge resides in people and that that information needs to be transmitted down the generations or something to the next—*

Yes, like this video I'm telling you about, I don't think they even show that to their people down there. That would be number one. And you're talking about thirty minutes. And if it saves somebody getting overexposure or just even knowing about a bomb cloud or seeing what it could look like. We had one or two pictures of them in the video, which was not part of the training—I mean it was part of the training but it was getting them a little bit better informed. Because it's not even clear what NASA's doing with the two airplanes, but they certainly aren't doing radiation sampling. And they didn't even get in on the two events that I told you about, and they should have because they'd have been there a lot quicker. What we originally had, we had a written agreement with NASA headquarters on their involvement, and now they can't even find it.

*And when was this agreement—approximately when did this happen?*

It was in the late sixties or early seventies.

*So when atmospheric is basically done and—*

Yes, after we weren't doing the atmospheric studies anymore. I was going to get into this, too, about the time when the British and the French were going to start flying their supersonic transports. They were going to fly them to the United States, and they would fly them in the

lower stratosphere. And there was concern, and justifiably so, of pollution that would come out of the burning engines. And so we did atmospheric studies in the lower stratosphere because we could get to about seventy thousand feet. And we did it in essentially the whole Western Hemisphere.

*Interesting.*

We flew to the North Pole, out of Fairbanks [Alaska], and when the weather got too bad there, we went down to the air base at Anchorage [Alaska]. And in South America, we flew out of Argentina at Mendoza Air Force Base.

*This is still under lab auspices that you're doing this or—?*

Yes, more or less. We were working with NOAA [National Oceanographic and Atmospheric Administration] and NCAR.

*NCAR is—?*

National Center for Atmospheric Research at Boulder [Colorado]. We were working with them and put some different detectors on the airplane to do that, and were measuring the ozone layer, and we were one of the—well, they were doing some on balloons, as I recall, and maybe rockets, but they were just up and down—and we were doing, what you might say, horizontal. And Mendoza, Argentina is about a hundred miles east—air miles—of Santiago, Chile. And we could fly down to the tips of the islands in Antarctica. And if we could have flown to the South Pole, we would have probably found the ozone hole before the satellites did.

*Interesting. Because you had that kind of equipment that could—*

Yes. Because we were measuring it and recording it and it was being evaluated by NOAA, the atmospheric part of it, weather and so on, and then NCAR was into research of all of that. And they may still be doing that. I haven't kept up with them in recent time. But they had tried, I

[00:10:00] think, balloons or something before. They're probably in on the satellite business. Maybe NOAA also. And also out of our South American things, when the French started nuclear testing on one of their South Sea islands, we went to Mendoza to catch their debris that came east. And we would fly out and of course we had to go over Chile, and we could fly out about, let's see, probably four to five thousand miles. Well, this particular time was when Chile had one of their internal revolutions. And they had jet fighters but we didn't know what their capability was. But fortunately, we had a person from the embassy in Buenos Aires [Argentina] who was up on the intelligence in that part of the world, and he assured us that they couldn't get their airplanes anywhere near where we were, altitude-wise, and that their missiles they had on them, if they had them, were not going to be a hazard to us. So we had all kinds of other things going for us, of course.

And, this is strictly me, but as a result of our doing atmospheric studies, there was a technical group in South America and the United States that was interested in what we were doing. And so I got invited to give a technical paper on our findings in Uruguay in, let's see, the capital—

*Montevideo.*

Montevideo. Thank you. So I wrote my paper and I had contacts, so I sent it down to Uruguay to get it translated there because I knew if I did it here, I'd probably get Spanglish. So I sent it down, and Gloria, my wife, and my daughter got to go with me. And they went to Uruguay with me and they were given a special Air Force guide. There was a little concern that they might be targeted by somebody who wouldn't have a good thought for them. And so anyway, this was an Uruguayan Air Force captain who arranged their escort. But getting around to the paper, Gloria and Jody got invited to the session. And I gave a fifty-minute paper in Spanish. And when I

finished, Gloria came up, and as she's a native bilinguist, she says, *I don't believe it.*

Because she probably couldn't understand the technical terms, but that was OK. But that was my biggest linguistic accomplishment.

*That's incredible. Now when you're reading it, you must understand most of it, even though it's been translated, because you wrote the paper so you know what you're—*

Well, I went over it with her to start with, of course, and then with some other people that were bilinguists. And I pretty well knew the whole paper.

*How great. How brave of you to do that.*

[00:15:00] Of course, I had had Spanish when I was in high school, but that was, oh, what's the one that we do? It's from Spain.

*Castilian.*

Castilian. Thank you. And I have another side story. I think it was the first time we had gone to Argentina with our airplanes, and this one evening after our airplanes got back and we were cooling off, I was in the lounge at the hotel we were staying at. There was a young man in there from Lufthansa, and he was selling tickets to people in Argentina—I'll back up a second.

Argentina is a Spanish-speaking country *but* it's about 60 percent Italian, and there are a *lot* of Germans, maybe 10 or 15 percent. Well anyway, I had taken scientific German and maybe I could read a little, but this guy was speaking Spanish with the bartender and so he and I started speaking Spanish. And eventually a guy comes in, and I don't know whether you're familiar with this terminology, but *con dos brazos*, hug, and there were just at that juncture just the four of us in there, and he says, *Señor*, you're the only person in Argentina that speaks Spanish. And he was the hotel barber and he was from Seville in Spain. Barber of Seville.

*Ah, got it.*

Well, in those days, I was still wearing a crew cut because when you're in a helmet and everything, you don't like to have hair messed up. So anyway, I went in the next afternoon at his insistence and he clipped for an hour so that we could talk.

*Because you spoke Castilian.*

Yes.

*That's great.*

So I've had some good experiences along with my tough ones.

*I wanted to ask you a couple of questions about Nevada. Were you involved in [Operation] Hardtack II then, the testing before the moratorium?*

Yes.

*Can you talk to me about—some other people have talked to me about the really intense testing schedule there.*

That was after overseas.

*Right.*

It was tough because we were getting ready to be restricted in testing and so we had a very condensed schedule. We went in and they were atmospheric, but they were also much lower yield than our overseas tests were, because they were basically primaries, and of course we did multiple primaries and thermonuclears in the overseas tests. We were flying out of Indian Springs Air Force Base and we'd go up and do them and come back. And we also did, what's the name of it? It was a big underground, but it was an explosion that made a big crater.

*Sedan?*

Sedan. Yes.

*The Plowshare test.*



Yes.

*Tell me about that. I have heard about that from the weather guy.*

Well, that was a Livermore event, and so one of my associates from Livermore was actually flying it, but I was in the CP control point and talking to him, because he was not nearly as experienced as I am, or was, and he was scared spitless.

*Really.*

Yes. And he was doing the sampling. I can't remember whether we had two airplanes on that or [00:20:00] not. And that's before we did the Aleutians, too. And I didn't go out on the Aleutians.

*So again he's flying out of Indian Springs for this?*

Yes. And of course I was there when they recovered and all of that.

*Because there was a lot of debris in that thing because it was—*

Yes, but a lot of it was dirt and rocks. I can't remember what the yield was but it was probably about 10 or 15 K [kilotons].

*We'll see what they say it is in here. That was '62, I think. So you saw that from the CP.*

Yes.

*And then when you were talking about the venting of the underground tests, were you around when Baneberry vented? I know that that was a Livermore test, too. That was that big venting.*

I can't remember whether I was there or not on that one.

*OK. Sedan was—does that make sense, 104 KT?*

Yes, it was pretty big.

*So that had a thermonuclear aspect to it.*

Oh, it had to be if it was 100 or more.

*I guess you're right.*

Yes. Baneberry. I think I was out there. I might've even been flying. But again, we could go to my archives and we could find out. If it's important, we could do that. And we did some that were in the side of the hills there, we did some of those, too.

*Where they have dug the tunnels in.*

Yes. Because we were afraid they were going to not be contained.

*So you would, again, wait a certain amount of time after the detonation, or with underground would you be up there already, or—?*

We would be up there already, so that when it went off, we could see if anything happened, because there was nobody with as much visibility as we had.

*That's right.*

And there was one other aspect of the undergrounds I didn't mention earlier, but we did drill backs on those to get samples.

*You were involved in that?*

I did some of those, too.

*Some people have talked about the drill backs, but how would you be involved?*

Well, I was there to make sure that they got deep enough and if they were bringing up debris, we wanted to know if it was something that we could use. Because the drillers were oil well drillers, and so we wanted to be there and make sure that if there was radioactivity, that it was taken care of properly, even though the test site had some of their own people, too, but we just wanted to make double sure. Then we'd do a drill back a day or two later.

*So would you physically go into the tunnels at those times or are you—?*

Not in those. As I recall, most of those were Livermore's, so I didn't go into any of those.

Eventually I did something that was its high publicity right now. I was in Quality Assurance and

I was the laboratory's Quality Assurance person for Yucca Mountain before I retired. So that's been going on a *long, long* time. And that needs to be solved because they weren't talking about at the power plants making big protected water pits to put stuff in, and that still is questionable. Then with terrorists around, it's spooky. And I think getting them in to Yucca Mountain and sealing them off—they've done a lot of studies on whether we're going to get moisture in there or not—we need to get that settled. The biggest potential [00:25:00] hazard—I think, and it may not, since we've done WIPP [Waste Isolation Pilot Plant]—we may have enough experience there, we know how to protect things en route. Sure, they're going to be more radioactive than the WIPP samples are, or barrels, but this terrorist thing is just too spooky for me, on the power plant stuff.

So that's a non-air sampling part of my career. And eventually, before I retired, I had the dubious pleasure of being the laboratory's first Quality Manager, on the fourth floor of the Ad[ministrat]ion Building, right next to the Director's office.

*And who was Director then?*

Sig Hecker.

*So the first Quality Manager comes pretty late in the lab's career, then, it seems then.*

Oh, yes. Well, Quality Management in the whole country is not very ancient.

*You're right.*

It's not. We have Quality in New Mexico now and they do do inspections and give awards and everything, and I was asked to get in on that but I decided not to.

*Did you do any special training for that or was that just a result of the work that you had done for all the years?*

Yes, I did some special work. I had gone to some of the things that the National Quality System had done. And you know as a scientist, I'd thought I made a mistake once, but I was wrong.

*Tell me what you mean.*

Well, Quality Management in a place like the laboratory, at least in those times, was: don't bother me, I didn't do anything, I didn't do anything wrong, I'm never wrong. That's what I meant when I said I'm a scientist, I thought I made a mistake once but I was wrong.

*I got it. That's the attitude.*

That's right. I don't know whether it's changed much or not. I haven't been associated with the current Quality Manager very much. Just immediately before I retired, I went into the Weapons Quality Office, and of course they were closer to being involved in that than your routine scientists were. And so that was an interesting culmination of my career.

*I guess. So you have to set up systems and things to make sure that procedures and protocols are being followed?*

Yes.

*And if it's in the weapons part, then that has to do with the actual, what, safety and security of the weapons themselves or—? I'm guessing. You're going to have to tell me.*

Yes, I can't recall how far we went into that but the local procedures were the things. And some of the things that have gone on in the laboratory could have been avoided if they had updated their quality system, because it's basically just management and pointing your fingers and your important situations to the right subjects. And their Administrative Quality Management procedures, too, there are questions and things that need to be done. And you know the Los Alamos National Bank got one of the state awards.

*I didn't.*

I think there've been some low level awards at the lab, but not any really significant ones.

*It's got to be an interesting problem, though, because at the lab you got scientists who are trying to do good science, and then you've got the management problem, and how do those things get balanced properly, I guess?*

Well, that is a challenge, and it's a significant one, but if your administrative managers are hooked in properly with the scientists and vice versa, it should work out. It should work out.

[00:30:00] There are other organizations in the country that are not quite as connected to science as we are but have technical programs of various sorts that—. Well, like I say, if you're conscientious of doing a good job, then the Quality Management aspect is not a toughie. But the way that has been advertised and all and the impression that is given to some of those folks just turns them in the opposite direction. So, that's how that worked out.

*So you retired what year?*

I think it was '91. There was a special program to encourage people to retire and I did that and I was credited with thirty-five years. And, oh, I was going to go into that, that program was with the University of California. And when I came, we were all State of California employees. And so that's where our retirement benefit came from. And that's a kind of a worrisome situation right now.

*I understood that from someone else I was talking to. If California no longer manages, is that why it is?*

Well, no. The State of California won't be a problem but the significant thing, at least as I'm feeling it, is any related benefits. And since my wife and I are both now considered also former UC [University of California] employees, they're taking care of our health insurance, at least part

of it. We're under the core program, which is we don't pay in anything. I think the other programs people pay in.

*You're in a good situation with that one. It's not so common anymore.*

No. It's a \$300 deductible and you have prescription coverage.

*So your wife worked for the lab, too?*

[Yes]. She didn't work terribly long. She didn't go to work until our kids were pretty much just grown up and out of the way.

*And what did she do?*

She was a secretary. She started out as a "casual," we called them. I don't know whether they still have that definition or not. But that was part-time and she worked various places, wherever they needed somebody, if you had employees that went on vacation and that sort of thing. And then she went to work for X-Division, which was the Weapons Design Division, and that's where she retired out of. And so she knows some people that I never did get acquainted with either. It's because we were in different activities.

*Right, exactly. They're designing those things that you're taking the samples on, I guess.*

Well, one of my former associates is semi retired and he's working with, I think, some of the design people and the intelligence people. It's Don Barr. He lives in Jemez Springs [New Mexico]. Comes to work two days a week. And he's doing some work, I think, with those Air Force people I mentioned earlier, or at least their follow-ons [successors].

*Now that's the other thing I wanted to ask you about. So you were saying earlier, I think, before we started recording that you get together yearly with these Air Force guys who worked for you, is that right?*

Yes. And I guess I should maybe make that a little clearer. Since I was the project leader, occasionally I would have an Air Force person who wanted to question my position. And [00:35:00] of course when we'd go overseas, the whole operation was under a military commander, and even us scientists sort of worked for them. But what I was about to say is on these questions, I had one or two that were going to give me a big problem; I called one of their superiors and in less than fifteen minutes, that gentleman was on the right track.

*Well, give me an idea of what kind of problem, having to do with the mission or—?*

I can't remember what it was. Maybe it was because at the time it was a big thing to me, but I let it go away. Because most of the commanders and I were on equal footing. But in this case, the Air Force officer said, Oh, he's General Guthals, or whatever. And so I had no difficulty with that. And the people that were flying with me and for me, we were always like this, and even the ground troops. Are you familiar with ranks in the Air Force?

*Somewhat.*

Well, this was an enlisted person and a Senior Master Sergeant in charge of the sample recovery. Essentially he was my assistant in the radiation exposure business, too. Well, we have a whole body counter at LANL, and so I got some of my former pilots to come up and go through the body counter, and I also got him to come up. And if you want to call it grading, he flunked. He had unacceptable radiation contamination.

*And how would he have gotten this? From...?*

You're going to get it. So one of the things that they probably still do is if you exceed your radiation limit, then you have to get in and the shower and scrub down, the whole nine yards, and then they will recheck you. Well, we did that with him and he was OK. What we kind of figured out was that in his job he had not cleaned up after an exposure. It was probably in his hair.

*And what would he have been doing in this job?*

Well, recovering samples or cleaning the airplanes or all the kind of things where we had fission debris.

*Work that you did. OK. I see.*

Yes. But the thing that bothered me was this: it wasn't the next day after his last exposure.

*Oh, gosh. I see what you're saying.*

And to have it in his hair yet was troublesome to me. Because as you'll see in the film, when they were doing high exposure potentials, relatively speaking, they had special clothes on, they had special hats and masks and gloves and shoes and the whole bit. And when they finished up their job, they were monitored and then they threw all those clothes in the containers that now would go to WIPP and had to clean up and they had to pass checkouts when they were finished.

*So something in that system had broken down, then, for this guy.*

Sounds like it. Being his position, he might've walked around the detection monitoring system.

*Who knows. Now this film, is this at the Los Alamos archive?*

No. Let's see, just a minute, I think I have got something. Outreach things from the lab. You can [00:40:00] do that. And I just gave that information to the gentleman that headed up that presentation.

*The guy that was doing the presentation for the readiness, is that what you were saying?*

No, read what it says at the beginning of the film about cloud sampling and—

*Atmospheric Testing Legacy Conference. Oh, wow.*

Yes. And they were interested in where the debris went from the wash-down of the airplanes and things like that.

*I see. Right.*



If you just get with the Public Information people—

*I know someone over there. I'll get that.*

Look at the film. This is one of our airplanes and that's a bomb cloud in the background.

*I hadn't noticed that. Now do you have an extra copy of this?*

Let me see. LANL has the other films.

*That's actually a great picture.*

Oh, we might have touched a little bit on this but I think I mentioned that I'm being investigated for my exposure.

*Oh, no, you didn't.*

I didn't? Well, I'm one of the first people from Los Alamos. And I understand that a few people for beryllium and that kind of exposure have already had exposure problem approvals. But what I'm going to be doing next week is going to the lab and checking their lab exposure records and seeing what they have on my exposure. The overseas work on the film badges was done by Los Alamos, and so those records should be here. Now I think the NIOSH [National Institute for Occupational Safety and Health] are investigating my radiation exposure. I believe that they have some feedback from somebody at the test site on exposures because what they were doing with film badge reading there, they would have. I don't remember whether it was EG&G [Edgerton, Germeshausen, and Grier] or who was doing it, but some one of the contractors out there was doing the film badging.

*REECO [Reynolds Electrical and Engineering Company] was doing it.*

I guess that's right, REECO.

*They were doing radsafe, I'm pretty sure.*

I think you're right. Now that I think about it, yes. And I think that's in the report, but they're doing what they're calling exposure dose reconstruction now, which is kind of guesswork, and they said, Oh, Los Alamos doesn't have the records. Well, I have talked to a couple of people that think they have the employee records, so I'm going to go into the lab next week and check with them and let's see what records they have. How this came about is I was one of the first people that was asked to do this thing, but initially this program was being done by the DOE [Department of Energy], and now it's being done by the Labor Department. And it's a government project and funded and so on and so forth. Well, the manager for the local study from the Department of Labor said, Oh, we don't have very many claims that have been settled west of the Mississippi. Well, that's hard for me to believe because one of the bigger employee places like the one in Denver and—

*Rocky Flats.*

Rocky Flats and Idaho and all those other places, and Pantex is one that's big on their list. And [00:45:00] they've changed their program some. Well, the first change was, as of a month or so ago, I was a twelve-year cancer survivor. They didn't have my cancer on their acceptable list initially, and so they eventually changed their cancer list and they've plowed me in now.

*And do you mind my asking what kind of cancer that is?*

Prostate.

*And that wasn't on the list before?*

No. Not when we first were investigated. And you know I've been filling out paperwork and all this jazz and being contacted and so on. And going back to when this first got started, they had a get-together down at the college in Española [New Mexico] and, oh, there were I don't know how many people were there, but there were a lot of people there. They asked us to give a five-

minute presentation on what our job had been. There were many people there that were survivors and a few of the people in wheelchairs, with this, that, and the other claim. I was one of the last presenters. All these stories were very grim. When it came my turn and I said, well, I want to thank all you survivors for having someone who is able to do the job they did at Los Alamos and everything. I said, otherwise, we probably wouldn't be here today talking about it. And they clapped for me. But the real headache from this conference was that we didn't realize it till we got there that the meeting was a Congressional hearing, recorders, everything.

*And when was this?*

Probably four years ago or so.

*And when you say "we wouldn't be here," you mean because your defense work. What did you mean by that?*

Well, what I meant by it was if the folks in the early times of the laboratory and Los Alamos had not been here, we might've been bombed out by the Japanese or the Germans. You know we might not have won the war.

*You're talking World War II, then.*

Yes. And we might not have won the war, because it was Hiroshima and Nagasaki essentially that got the Japanese attention and let them think about what they better do before we invaded them. And of course doing that one, even though we killed a lot of people there, might've saved a million people if we'd had to invade them. And the work of those early people here was very important to us winning the war. And that's what I meant.

*So you meant World War II, not the Cold War.*

No, not the Cold War. Well, the Cold War is a follow-on to that, and there's a lot being said about that nowadays, publicly, that if we had we not been in the right spot, that the Russians might have annihilated us.

*So at this meeting you said that and they applauded you. And then you said it got complicated.*

*Because it was a Congressional hearing?*

Yes.

*So you're in that process now of possible—?*

Yes. And I mentioned briefly a minute ago, now that the Department of Labor is onto it, it's being done differently and the requirements even sound different to me. They've got their project, and I've got an envelope in there that I have to study and do something more with it; they've got several subsets of it, and Subset E is extending beyond your initial problem. Like [00:50:00] with me, I take over \$400 worth of anti-cancer medicine a month. And they're saying that that should be included all the way from the time my problem began. Well, finding all those records may be a full-time job, too. And also they've changed something about skin cancer.

That's on the list now.

*What do you sense, having been doing that work as a kind—do you think that it's likely that there's a connection?*

Between what?

*Between your illness and your work?*

Quite possibly. You know that tumor situation for many years was thought to be strictly inherited. Well, there's plenty of evidence now that it's not. And so there's a very different outlook on it than there was even when I had mine removed. And I'm an exception from that particular time period. I'm still surviving.

*Right. That's a long time.*

Well, the average is ten or less.

*Well, that's great, though. That's really great.*

Yes. So you're talking to me today.

*That's wonderful! Well, that's still unfolding, then, the situation with the Department of Labor and the claims and the science of all that.*

Yes. And the previous people have been looking into me but they didn't move on—initially that tumor wasn't even on their list. I have another friend that needs to make a claim but he won't do it.

*Yeah? Do you know why? Do you have a sense of why?*

Well, he just doesn't want to be bothered, I guess. And it turns out that he had a daughter after his problem and she's mentally and physically disabled. And he's got one that's older that's just fantastic. So it could have been that his sperm was affected. And I haven't heard of anybody else that's been in that situation. But of course I'm not at the center of information either.

*Sure. Well, you have given me a lot of information in over two hours, so I will release you.*

**[00:53:37]** End Track 2, Disc 2.

[End of interview]