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

Interview with Richard Nutley

November 8, 2004
Las Vegas, Nevada

Interview Conducted By
Joan Leavitt

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The material in the *Nevada Test Site Oral History Project* archive is based upon work supported by the U.S. Dept. of Energy under award number DEFG52-03NV99203 and the U.S. Dept. of Education under award number P116Z040093.

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

Joan Leavitt: *Why don't we start with the things leading up to working for AEC [Atomic Energy Commission]. Maybe you could start with your background, where you were born?*

Richard Nutley: I was born in Yakima, Washington on August 17, 1935. My father was a civil engineer with the Bureau of Reclamation [BOR]. We moved around to a lot of different spots; I went to four high schools. Upon graduation from high school I entered the University of Washington and was there for a year then got a scholarship to Yakima Valley Public Junior College, where I graduated. When I went back to the University of Washington, I was told I was going to be drafted, so I joined the Army Reserve. When I got out of the Army Reserve, I went to Montana State University in Missoula, Montana, where I graduated with a Bachelor of Science.

About what year was that?

[Pause—sound of papers rustling]

Well, let's see, it was in '59.

So you were anticipating getting drafted and going to Korea, is that what I'm hearing you say?

No, I was in the Reserves between Korea and Vietnam. There were no active wars going on while I was in the Reserves for six years. That was nice, no wars.

After graduation from Montana State University, I went and applied to the Atomic Energy Commission offices in Richland, Washington and was accepted.

Now what exactly is in Washington up there? Is there a lab? What is it up there?

Well, it was called the Hanford Works; it was where the plutonium was produced. They had many large reactors that, "cooked" uranium to make it into plutonium. I was in the contracts division of the AEC office there for two years. A bunch of characters came around from headquarters, AEC recruiting people, to get people to come to Nevada to work on the nuclear rocket project. They offered me a double grade raise to come and I picked up my wife and child and moved to Las Vegas. I arrived June 17, 1962; it was 117 degrees, and I knew I had gone—

You had gone south.

I had gone south. My wife and child stayed with her parents in Wyoming while I found a place to live.

Did you find a place in Las Vegas itself? Or did you do the commute?

No, I stayed at a beat-up old motel that, thank the Lord, is gone now. The doors were curtains and the bathroom was down the hall and there wasn't even a shower in the place. I stayed there I think two nights. There were some guys at the AEC building who had rented an apartment over in the Tam o' Shanter and they were looking for people to share the costs, so I moved in with them while I looked at housing. There just wasn't anything I could afford or even I could get into for six to nine months.

Oh! Now that's when there was a lot of—

Construction.

Well, a lot of workers coming to Las Vegas.

[00:05:00] Oh, yes, It was horrible. I finally found a thirty-five-foot [long], eight-foot-wide trailer and parked it out near Nellis Air Force Base and went and got my family. My in-laws met us in the middle of Utah and we came down. My son wouldn't go outside because of the heat. He'd been in Wyoming where it was cool.

Oh. And you probably had a swamp cooler, didn't you?

Yes.

Because we didn't have air conditioning.

Actually I bought an electric in-the-window 220 unit.

An air conditioner, I guess they called it.

An air conditioner, yes. We lived there a little bit less than a year. I was the first one to report here for work as a government employee for NRDS [Nuclear Rocket and Development Station]. They didn't have anything for me to do because there was nobody here, so I went to work for AEC writing construction reports. I wrote construction completion reports and schedules and stuff like that at the AEC building. It was on Main Street; the old, old AEC building. While I was there, they put me on the payroll as an AEC employee there, the home office was Albuquerque [New Mexico, Albuquerque Operations Office, ALOO], and the Nevada office became an operations office, a full operations office [Nevada Operations Office, NVOO], so I sort of was at the birth of that. Then people started showing up and I started doing any administrative job that they needed done. I ended up in Personnel and hired every one of my bosses above me.

You did? You hired them.

Well, I handled the paperwork.

You didn't make the decision on it, then.

I didn't make the decisions about my supervisors, but I made decisions about other kinds of people, because there was no one else around.

We moved the office from a warehouse down the street from the Highland AEC office out to Engine Test Stand Number One [ETS-1] Control Room, which is underground. And so we would ride the bus out there. Somewhere in my stuff, I have a certificate of having ridden the bus

250,000 miles. That was a joke at a Christmas party one day; we were all going to get together and practice by riding the bus from Las Vegas to Beatty and back with no bathrooms and a case of beer on board. That was the joke; it was kind of funny. I didn't want to ride the bus all that time, because it took a lot of time away from my family.

So my wife and I were looking at a larger trailer; half our stuff was stacked in boxes out behind the trailer. I went in one day to the trailer place and the guy said, I'll discount that trailer for you because it's been here a year and nobody wants it. Well, it was a twelve [foot] wide, sixty-five footer. I mean that was heaven compared to what we'd been in. So I bought it and had it delivered at Indian Springs.

I moved my little family out to Indian Springs and we started having a pleasant time out there. My wife was from Wyoming, so she liked small communities. That was, and still is, a small **[00:10:00]** community. My son started school out there as a kindergartener. On his birthday one spring my wife was going up to the school taking cupcakes and party favors to a party for him, and here he came. He was trucking down the road just as fast as he could go. She stopped—

Away from school?

Away from school. She got him in the car and she said, What's going on? And he said, I'm not going back to that school, they aren't teaching me anything. You teach me more at home. My wife was a schoolteacher. Well, she got him back to school and to the party.

Then lo and behold, my wife decided that we were going to have another baby. We were living in Indian Springs and Congress, in its infinite wisdom, passed a law that said that if you traveled from Las Vegas to the [Nevada] test site, you got seven-and-a-half dollars a day per

diem, but they didn't include Indian Springs. So I moved my family back to the present house that I'm in and traveled to the test site.

Now while I was living in Indian Springs I made friends with a man by the name of Jay Hayes. Jay had a beat-up old station wagon and it would cough, sput, mutter just *horribly* all the way from Indian Springs to Cactus Springs. You know where Cactus Springs is? It's about five miles towards the test site from Indian Springs; it's a wide spot in the road. The minute that station wagon hit Cactus [Springs] it smoothed out and everything was fine all the way to the test site and all the way back, but the minute it hit Cactus [Springs] it'd start to sputter again. We never did figure out how it knew it was in Cactus Springs.

Jay bought used tires for that vehicle and usually had three or four in the back end. We got to the point where we were *very* good at changing tires. I remember one time we had a bunch of guys riding with us, I don't remember why they were riding to Indian Springs with us but they were. We had a flat tire and by the time the car stopped rolling I was at the back end getting the tire out and the jack and so forth, and these guys came around and said to Jay, `How can we help?` Jay said, `Get out of the way,` because we could change a tire in nothing flat.

Part of the time I rode the bus from there and part of the time I rode with Jay. We would get up a little earlier, about a half-hour, forty-five minutes and drive to Mercury. He'd get his briefing for the day from the Mercury guard center and then we'd drive a government vehicle from Mercury out to NRDS.

He worked for NRDS too, then?

Well, he worked for Wackenhut [Services, Inc., WSI] assigned to NRDS.

When I moved to town, I got in with a guy who was working at NRDS by the name of Dick [Richard] Howard. Dick and I worked out a deal where I would drive and he would sleep in

his Volvo. In the Volvo that he had, the rider's seat folded down so he could lay out and go back to sleep, and I'd drive to the site. More than four to five times, I'd be walking around the office or someplace and some guy'd say, Didn't Dick Howard come out with you today? We didn't see him in the car. He was asleep right there beside me the whole trip. So those were kind of fun things that happened.

On NRDS after I had worked for a while as the junior member of the Personnel Department, I was changed over to several other positions and ended up as Bob (Robert) Helgeson's **[00:15:00]** executive assistant; Helgeson was the manager.

I remember his name in that article I think you wrote.

He was a great guy. About two or three years after they closed down NRDS, he died of a cerebral hemorrhage which was a shame because he was a very intelligent man.

The office at Engine Test Stand Number One underground had several things happen there. They always sent a guard in to check out the place before we got there in the morning, and lo and behold, one day the guard found a rattlesnake under a secretary's desk which she was not too happy about.

Oh my! No. Did that happen very often?

It only happened twice that I knew about.

But it was just because you were so far out there in nowhere that….

And I mean the snake was there before we came, that was his home territory; its home territory.

But somehow it got inside the building.

Well, yes, but a snake can get in places that people just don't believe; just like a mouse, you know.

We had a bad situation there one time. Somebody was stealing the coffee money and we didn't know who the heck was doing it, so they put a little TV camera up in our ceiling. It was a contractor engineer who was earning twice as much money as any of us in the government, but he was stealing the coffee money. They caught him with the TV camera.

Did he get fired?

Yes.

While I was working in Personnel one day, a secretary who shall go unnamed—actually we called her the Dog Lady.

Now did she have a dog?

Well, that's why we called her the Dog Lady. She transferred over from the Air Force from the big air base just over in California.

El Toro? Is it El Toro or is it—?

No, that's a Marine base. Edwards [Air Force Base].

She came to Mercury one day and came in and said, `I want to spend the night. I'm going to work.`

And they said, `Well, you can't take the dog on the test site.`

She raised holy Ned about it and finally one of the guards said they'd watch the dog for her.

So then she brought the dog to Indian Springs and my next door neighbor, Bob Barney, who was an engineer with AEC at the test site, took care of the dog. Well, the dog was old, had arthritis and was miserable. It would go—at Indian Springs you built up these little mounds around the trees and put water inside—he would go lay in that water to cool off and then he was even more miserable.

Anyway, one day she came into my office while I was in Personnel and she said, I want the kind of feminine care products that *I* want to use put in the ladies' room. And I said, Well, now, look, we buy those things by the carload through **[00:20:00]** AEC downtown. They're used to pick up spills of radioactive material. They're very good for that. We have no control over what brand it is. Oh, she just thought I was the worst thing coming down the pike. I said, Well, now, look, you go see the procurement officer. I shoved her off on the procurement officer. She raised Ned with him until he finally went out and bought her a box of *her* product and put it in the ladies' room for her.

But for the most part, we had very little trouble with people who worked out there. It was an interesting time. We would hire these guys from all over the United States: engineers, physicists, the whole group of administrative people. They'd come there and they'd go to work and their wives just could not stand this. Usually after a year to a year-and-a-half they would move home. Usually then within four months I would get a call from that individual saying, Is there a job opening? We want to move back.

There were no better jobs available, is that what you're saying?

Well, partly, but partly because they got used to the Las Vegas twenty-four-hour, seven-day-a-week town of entertainment. Their wives finally decided they *didn't* want to be in some Podunk place back in the East where it was cloudy all the time.

So the weather was a plus, then, even with some of the families—

It was a plus and particularly in the winter. I *truly* believe that my wife lived a *lot* longer because we came to Vegas and we had calmer winters than she would've if we'd have stayed in the Northwest. But that was something I noted as I was in Personnel.

I went along for about a year, and NASA [National Aeronautics and Space Administration] was raising Ned because the predominance of personnel—

Now this is an interesting phrase you're using: "raising Ned." You're saying that instead of "raising hell," is that what I'm hearing?

Well, you know.

Raising Ned; making a fuss.

Making a fuss.

You can continue to use that term, I just wanted to make sure that we were understanding the same thing here.

Anyway they were raising Ned, hell, whatever, because over three-fourths of the population of the federal workers on NRDS [Nuclear Rocket and Development Station] were AEC employees, not NASA, and NASA wanted parity. So a group of us switched over to the NASA payroll. We didn't change jobs; there was no—

You know, you usually don't think of NASA and the Las Vegas test site as having any kind of connection.

No, you don't.

This is really interesting, that the test site was used for many, many purposes.

Well, NASA funded roughly half of the NRDS project because it was supposed to be a nuclear rocket for space propulsion. The fun thing about that were the NASA rules versus the AEC rules for getting rid of surplus materials: NASA had authority to *give* it away to cities, towns, county governments and AEC did not. So we would figure out a way to make it NASA property if we wanted to get rid of it because we could just give a bunch of hard hats to the fire department in Beatty, for example. We did a lot of that.

Did Las Vegas get any of that donation?

Oh, yes.

Did they?

Oh, yes. I can't remember exactly what it was, but particularly fire departments and police departments would get things.

Is that because of the kind of safety equipment or—?

It was that kind of thing, yes. If it was surplus to our needs, we tried very hard to give it to small **[00:25:00]** government units—Pahrump, Beatty, Tonopah—because, you know, their budgets are still nothing, you know what I mean.

Part of the time I was in NRDS, I was the procurement specialist in charge of surplus. What I would do is go through catalogs, Navy, Army, Marine catalogs. The *best* thing I ever got was stainless steel furniture for the medical center; I got stainless steel beds, stainless steel—

Are you talking the medical center on the test site?

At NRDS, we built our own. We built half of what we thought we needed and then waited; we never needed the other half. [NRDS was Area 25 or 400. Area 26 or 401 was the site of the nuclear Ramjet tests.]

Anyway, I got desks, I got tables, I got all kinds of stuff. And a bunch of the guys said, You know, we've got this nice auditorium, it was about two-thirds as wide and twice as deep as this. You could divide it off into three separate rooms for meetings. The guys wanted me to get a piano off of surplus and John Jewett who was the assistant manager for administration,—said, No way! So I never got a piano off the list.

One day I was in my office and some guy called me up from the guard shack and said, Nutley, I've got ten trucks here of materials to be delivered to you. I said, I didn't order any ten trucks. What in the world? Get the paperwork and call me

back. I went upstairs into our observation room where we could watch the tests from inside the administration building, looked out, and here, sure enough, were trucks lined up outside the gate. Well, it seems that one of our engineers was on vacation in New Orleans [Louisiana] and he ran across some people who were bringing back the ATLAS [rocket] surplus materials from England when they deactivated the ATLAS in England. Well, that was cryogenic material. Those were valves and piping and all kinds of things having to do with cryogenics; super cold flow oxygen-hydrogen. These vehicles were *full* of this stuff. Well, when I found out who had signed for them, I went to the boss and he called him in and chewed him out really well. And we debated the whole issue; all we needed to do was pay the truck transportation costs from New Orleans to the test site. We looked it over and we decided to take it, so we filled up *rows* and *rows* of bins in the storage area with these cryogenic valves. We saved the government a lot of money doing it that way but it would've been better if people had talked to us.

Now Area 26 is up the hill from NRDS and it's where the nuclear Ramjet tests were done. About a year and a half after—I don't remember exactly—a year and a half after we came on the **[00:30:00]** test site, they deactivated the program. After a while AEC decided that we could go up there and take what we needed, except for certain things. So I was the first one on Area 26; I took office stuff: desks, chairs, tables, blackboards, electrical distribution stuff, telephones, that kind of thing. So I was the first one to get my hand in that.

This is all to recycle this stuff, then?

Yes, you know, a desk is a desk. If you need five or six desks and you can get them off surplus, wash them up good and repaint them, who's going to care? So that was part of what I got to NRDS.

One of the first things I did when I got on NRDS was to watch a test. The nuclear rocket was about thirty-six inches in diameter and thirty-six inches high. That's not the rocket, that's the reactor; the reactor was in an aluminum container with entry and exit on each end. The interior of the reactor was made of carbon with imbedded Uranium 235 [U235] in little beads. What happens is you take a large tank and you fill it full of hydrogen, liquid hydrogen, which is way down there near absolute zero. You pump it with a special pump built by Rocketdyne into the top of this reactor, if it's sitting that way, but we've tested them upside down, so you pumped it in through the bottom. You had holes through this carbon material and the hydrogen would flow through the reactor. As it went through the reactor it gained temperature, and when it came out the bottom, you put it into a nozzle, like you would on a rocket, and it expanded in that nozzle and gave you thrust.

Well, we were having all kinds of trouble: the reactor wouldn't stay together, it'd break up. So I was sitting there watching this test and I was on the phone to headquarters, to Harry Fingers, the big boss, and I was describing what I was seeing. If I ever believed in "don't kill the messenger," that was one time, because I kept saying, `Flash. Flash. Flash, flash. Flash.` And he kept swearing at the other end.

He didn't want to hear this.

He didn't want to hear this, because when you burn hydrogen you get water. Here's this plume of hydrogen that's five thousand degrees hitting the atmosphere, there's *no* color, the only thing you can see is heat waves. There's no way to tell there's fifty thousand pounds of thrust going there. It's just unbelievable to watch. Here are these yellow flashes as the carbon burns as it comes out the nozzle. Well, they finally solved that problem, it was a complicated engineering problem; actually what it was, was water hammer, just like you get in water pipes somehow and

when they made a little change to how the reactor rods were held **[00:35:00]** together, why, it worked out fine.

The control point [CP] at NRDS is sort of in the center. You have a control point and then over here [indicating photograph] was the MAD [Maintenance, Assembly, and Disassembly] building, maintenance and disassembly. This was Test Cell A/B, this was Test Cell C, and then *way* over here even further was the Engine Test Stand Number One.

And how large an area was this?

I don't know.

Now this is NRDS, then.

This is NRDS.

The NRDS complex?

Yes. Anyway, there were control wires buried under the ground up here. This is all connected by a railroad, by the way, we called it the *Jackass Flats and Tidewater*.

The NRDS complex? Is that—?

No, the railroad was called *Jackass Flats and Tidewater*. It was an official licensed railroad; the State of Nevada licensed it.

Anyway, these underground wires were plastic, and the antelope ground squirrels would dig down there and eat the plastic off the wires because there was salt in the plastic. We had to do redo everything with metal casings and then we didn't have any more trouble.

Did it slow things up there for a while, then?

Oh, yes.

How long did it take you to discover the problem and solve it?

Oh, about a month.

The other thing that was nice about the control point, the CP we called it, was it had an excellent place to eat. The chef went out of his way to be generous and to do a good job with the food. If we could eat up there, that's where we ate because it was good.

You really liked your little cafeteria there, then?

We did.

And you also had a medical facility there?

Yes. Not at the CP, it was down at the— [sound of drawing] down here was the administrative area where my office was; no railroad.

I was in the CP cafeteria one day eating lunch with my friend Jay Hayes from Indian Springs, the guy from the guard force. He was Captain Jay Hayes, in charge of all physical security at NRDS. We walked out of the cafeteria, it was a Butler building. You know what a Butler building is? It's a metal, cheap structure thrown up quickly, no fancy insides or anything. We walked out and here up above us was a yellow aircraft flying around.

And they're not supposed to be around, right?

No way. We looked at it and it flew around us and then it went off and flew around one of the test cells and started south. Jay turned to one of the guards and he says, `Keep that plane in sight as long as you can.` So he took off down the gravel road, [Sound of drawing] I think he took off like this down to what used to be called Lathrop Wells. The plane landed at the airport at Lathrop Wells.

The guard drove over there and said, `Did that plane land here just a few minutes ago?`

The guy was working on some plane there and he said, `Yes.`

And the guard said, `Well, where are the people in it?`

And the guy said, Oh, those four guys went over to the house of ill-repute.

So we called the Nye County Sheriff's Department and they arrested four Texans for over flying the test site in the house of ill-repute.

And all they were trying to do was find a place to land?

[00:40:00] They were sightseeing and probably had too much to drink. But I've often wondered how they explained to their wives how they got arrested in a whorehouse.

We had another airplane come in. [sound of drawing] Do you know anything about the BREN [Bare Reactor Experiment, Nevada] tower?

Yes.

OK, the BREN tower was situated about there [indicating on diagram]. Some kid was on his solo long distance flight to get a license, and he was headed for Tonopah. He got into a bad storm and he didn't know what to do; he saw this cleared land over here and he landed right at the base of the BREN tower. Missed the cables and everything; oh, man, he was lucky.

Close call.

He was *just* sick. I don't think we did anything to him.

He didn't get arrested.

He didn't get arrested, no.

You just understood he was a lost soul.

He was lost and he didn't know what to do. His instructor came and got in the airplane with him and made him take it off from there and fly it out and around—

Now was this before the era of protesters, so—?

No. They moved the BREN tower from the northern part of NTS over to NRDS in the seventies; late sixties or early seventies. They tell stories about that; they'd have what they called a short

burst reactor. It was all self-contained and it had a window opening on it and you opened the window and aimed it at the target and then you turned it on and it went *click* and sent a burst of radiation down there. They were trying to figure out exactly how much radiation got to Hiroshima and Nagasaki because the height of the BREN tower was what the bomb went off at. Anyway, when they had that reactor up there, they had to have a guard near it. Well, here's this thousand-plus-foot tower, you know, you're inside the test site, nobody can get to it, but the guard's got to be up there. Well, if there's a storm, that tower's going *ba-a-ack* and *forth* and back and forth. They got kind of sick and finally somebody in his infinite wisdom decided that the guard could be at the base of the tower.

Oh, instead of at the top.

[Sound of pages turning] This is the area where the guard shack was. There was a fire station here and a radiation protection building here, and over here was a dog kennel [indicating on diagram]. A couple of engineers from one of the contractors and I were going through the stuff in this. People put a lot of surplus junk in there and we were looking at it to see whether there was anything we could use.

And that's a dog house that they—

Dog kennels. The dogs were gone.

OK, no dogs but just a place to put stuff, then. Were there ever dogs there?

Oh, yes.

Oh, this would've been—was this during the testing of dogs?

Yes, during atmospheric testing. They were used as test subjects. There were still a few there when I first got there. They were beautiful little pups; I guess they all got adopted out before I even had a chance to find out if I could get one.

Anyway, we were going through there and we found a bucket about that big around and about that deep [indicating size] and one of the guys said, Oh, that's a smoke pot that you throw off a destroyer so that you see where you dropped your last depth charges on submarines. And we used them up at the test cells so they'd pull the smoke up in the plume so we could see where the plume was going. Here, **[00:45:00]** I'll show you, he said, you open this area and then pull the plug. Well, you don't open that area and pull the plug. That *was* the plug. So I immediately ran over to the fire station and told them, It's just a smoke bomb. There's no fire. There's no problem. You don't need to do anything. I got back to my office and Helgeson called me in, *very* stern; oh man, that was the sternest he was with me ever.

He said, Did *you* put off that smoke bomb?

And I said, No, sir.

He said, Fine. Get out of here.

Good. That's all he wanted to know.

That was all he wanted to know.

So what happened to the guy who pulled the—?

I don't know. I decided that discretion was the better part of valor here.

There's times when you just don't ask questions, aren't there?

What could you do?

We always watched the tests at Test Cell C and Test Cell A from an observation room in the administration building. It was sort of a little area; it'd hold about forty people, really, standing up. But we had voice contact with the control point and TV monitors to monitor different things about the tests. One of the first tests at Test Cell C was going on and I was up there watching it and I turned to Bob Helgeson and said, There's smoke coming out of one

of the buildings at Test Cell C. He says, Oh, no, you're wrong. We can't have it.

Kill the messenger, huh?

Yes, kill the messenger. Well, what had happened—let me explain how they tested. There's a concrete wall about two feet thick to separate the test vehicle and the reactor from the electronics, the pumping stations and the piping and so forth. And what you do is you have your pumps and so forth on one side of the wall and you run the pipe through the wall and into the reactor. What happened was that some idiot decided to spray the ceiling and walls with foam for insulation so it wouldn't get too cold in there. Well, when you've got a plume out there less than thirty feet away at five thousand degrees Fahrenheit, the heat transfer to that building is humongous; it lit all that foam up and it dripped all over the piping and the pumps and everything. It was a royal mess. But I wasn't supposed to see a fire.

That wasn't part of the test, I gather.

No, it wasn't.

So your tests, then, would mostly consist of these plumes, is that what I'm hearing?

Oh, yes. The reactor qualification tests were done at Test Cell A/B. What happened was they had Test Cell A and then they built an extension to the wall and a different place to plug in; that's why Test Cell C is C instead of B.

And was most of this fuel or atomic reactor, was this ever used in NASA?

No.

I read one place where they were starting to use it?

No.

They're not?

No. People keep saying we need that because no one's been able to put a rocket into orbit and fire it with that much thrust. Fifty thousand pounds is an *awful* lot of thrust. I figured it out one time and if you could run that for a little over a week, you could be going nine-tenths the speed of light; in space.

So why haven't they used that power, then?

People are afraid of nuclear power.

Do you think it's unfounded fear, or do you think there might be some—?

I worked in the industry for thirty years, no, I don't think there's a problem.

So it's an untapped resource, as far as you're concerned?

[00:50:00] Yes, but I don't think it's ever going to happen.

Why?

Because of the public's fear of radiation. In spite of the fact that they're getting bombarded with it constantly; they think manmade is worse than natural which is the same stuff.

Is it possible that it will get tapped into if other resources like oil get more and more depleted?

I don't know. We're not building any new power reactors in the United States; we're decommissioning them all the time. But there aren't any more rivers to tap.

Rivers? Are you talking water or are you talking something else?

Water for electrical power. See, the power reactors that are producing electricity sooner or later get to the point where they're not effective economically to run anymore because they deteriorate with all the heat and radiation and so forth. So they decommission them, get rid of them. France built a whole bunch of them and is doing fine.

Still doing fine?

Oh, yes.

So it's been more a fear in the United States?

Yes.

Now this would've been the peaceful use of atomic energy, wouldn't it?

Yes.

It seems like [Dwight D.] Eisenhower talked about that.

Yes. Plowshare program it was called; beat our nuclear weapons into peaceful use. They produced literally thousands of documents. I transferred some five, six hundred of those documents to the UNLV [University of Nevada, Las Vegas] library.

Really? What are they called?

I went back to look at one two years later and the kids had stolen three-fourths of the collection.

Or maybe it was put somewhere else.

No, that's what the librarian told me: `Oh, we just put those out and the kids took them.`

What was it again that you had?

Plowshare program documents.

And you donated that to the UNLV library did you say two years ago?

Oh, no, fifteen to twenty years ago.

Would it be under your name?

No.

Would it be under the NRDS?

No, it would've been under Department of Energy [DOE].

Now one of the things I had fun with and enjoyed doing from time to time was to take people and run them around the test site as a kind of a guide and show them the NRDS and what we were doing and so forth. Late one afternoon they called me and they said, `This accountant`

from NASA headquarters has landed in Las Vegas and he wants a tour of the test site tomorrow and we didn't know he was coming. Can you take care of it?

And I said, Yeah, OK, I'll do it. So I picked him up at a motel on the Strip at seven o'clock in the morning, early, and head for the test site. Before we got to Indian Springs he wanted to know why we weren't there yet.

Kind of impatient, wasn't he?

Yes. We got to Mercury and then drove out to NRDS. I drove him around and showed him this and that, and then I drove him up to Engine Test Stand Number One. It was under construction at the time. We got out and walked up and I'm explaining this and that and he's just—he's not user-friendly. He was wearing what I *think* were brand-new Italian shoes and a suit that came off some specialty store somewhere in the Washington [D.C.] **[00:55:00]** area. They looked very expensive. My mother always said if she was going to come back, she would come back as a dust devil and she came across this new construction area and filled his suit pockets, shoes—

She did it.

—with pea gravel and he was just *infuriated*.

You guys knew better than to wear nice clothes out there, huh?

You're dang right. So we were walking back from there and I was trying to keep from laughing.

I looked up and I said, That's where we're going with this thing.

And he said, Where? What are you talking about?

I said, The moon.

The moon had risen over Vegas and it was just huge, just above the horizon.

He looked at me and he says, You would never see the moon in the daylight back East.

I never saw him again.

Well, we were going to have a visit from some other NASA VIPs only this was sort of a full-blown situation; it was a different time. Helgeson said, `Is there any way to get those jackasses [wild burros] away from here while the group is in the inspection?` *Why didn't they want them around?*

Well, who knows? What had happened was that Kurt Kincer who was the deputy [security officer]. Kurt had gone to the [National] Park Service [NPS] at Death Valley National Monument. They were trying to get rid of some jackasses; they had an overpopulation of jackasses. He thought that we should get a small group of jackasses and put them on Jackass Flats [NTS]. So they gave him a bunch, I think a couple of males and four or five females.

Did they do well?

Yes, they were great. They spent most of their mornings around the administration building eating the grass.

Now you said that Jackass Flats was named for miners on their way to Death Valley?

What happened was that Death Valley was too hot for jackasses and so they needed a place where they could put them where there was water and grass, so they went to Jackass Flats and staked out their jackasses near the—there's several springs on Jackass Flats. And then they carried their stuff down into Death Valley and did their mining and came back and got their animals. At least that's the way the history people tell it.

OK, so this is not a barren—this isn't like Frenchman's Flats or like these others.

No, Jackass Flats is not a flat area, it's a slope. Many kinds of bushes, grasses, grow there. It's a high desert community. All kinds of birds; I've seen curlews go through there on their trips north and south. Ravens live there. All kinds of lizards.

A lot of animal life, then.

Yes, in the winter, deer.

I gather you don't do testing there.

Oh, yes, they did testing there. You mean bombs. No bomb tests were there, but we tested reactors for space applications there; all of those runs but one were gases through the reactor. We did one test we called TNT. Transient nuclear test.

Now are any of these tests listed in this list here?

No. [Sound of pages turning] Incidentally, I wrote the first one of these [Referring to DOE/NV-209, *United States Nuclear Tests: July 1945 through September 1992]*.

Well, it's been very helpful.

I don't have a copy of the latest one but—

This one is to September 1992.

[01:00:00] [Sound of pages turning] We didn't include the reactor runs.

Was that because you're separate from—?

Yes. Well, a scientist one time told me that all the reactor runs at NRDS, added together, would not equal one atmospheric test for radiation exposure.

Anyway, the TNT test was a transient nuclear test. We put a concrete floor down around one of the railroad lines and parked a test bed, which is a flatcar on the railroad, with a reactor on it. Now around the outside of the reactor were these control drums; they were activated with pneumatic activators on the top and they rotated and half of the drums were nuclear reflectors and half of them were a nuclear absorbers. In other words, if the absorber was aimed at the reactor, all the neutrons would be absorbed that came out there and the reactor would be cool. As you rotated it, more and more of these neutrons were reflected back in and the reactor started to heat up.

OK, we placed this thing on the flatcar about there [sounds of drawing] and we rotated these drums. Now this was to see what the max cred accident would be on the pad at Kennedy if the thing was in a rocket taking off. So you rotate that from the fully off position to the fully on position, which is ninety degrees. It didn't make it through thirty. The reactor superheated the air in the reactor and blew itself apart.

About a year before I retired from DOE downtown, this *idiot* from DOE headquarters calls me up and says, What can you tell me about the reactor accident at NRDS?

I said, There was never a reactor accident.

And he said, Well, one blew up.

I said, Yes. It was on purpose. We wanted to know what the max cred would be on the pad at Kennedy.

[And he said], You *did*?

So that's the story of the accident that didn't happen.

Yes. When I was in contracts at NRDS, I got a phone call from a contractor in Phoenix, Arizona. He says, I've got this building they want to build out there on the test site. These specs, I've got some questions about them. Can you tell me about it? Nobody knows anything about it in AEC—it was still AEC at that time.

I said, Well, what does it read on the documents?

He said, Well, it says Area 51 storage building.

I said, I'm sorry, I don't know anything about Area 51.

These guys weren't very good at keeping secrets.

One of my interesting assignments was when we were expanding NRDS and trying to get bigger and better things going. We looked up at Area 26 where the Ramjet had been tested and wondered if we couldn't use some of *that* material to test reactors. So they said, Nutley,

would you do a preliminary look-see about us building a railroad from NRDS up there. I went and looked at it and looked at the maps and figured out how many switchbacks I'd have to put in because you're going up a fairly steep grade. That was fun. We didn't do much more than that.

[01:05:00] During part of my time on NRDS I was a safety engineer. I was in charge of cryogenic and fire safety. Cryogenic safety is very touchy because you've got gases and liquids at extreme low temperatures and at high pressures. If you've got a gas line that you're pumping high pressure gases in and it develops a pinhole, a man walking by can get cut in two from that. So I did a lot of that work.

I guess my only real claim to fame was the day I saved a trailer from burning down. I walked into this trailer on a fire inspection and I could smell it; I looked around and in here was a coffee pot somebody had let run dry. You know that pot metal underneath?

Yes.

It was dripping.

Oh, really hot.

Yes. So I unplugged it, went in the other room and said, Didn't you smell anything? And the guy says, No, I didn't smell anything.

My son wanted me to tell about this. We did a family day once, a Saturday where we brought our families out, our wives and kids, and ran around the site and fed them in the cafeteria; just had a really big, good, full day. I think Jim was probably eight or ten, he was still a kid. Some of the guys that knew me took him under their arms and he just had a ball looking at all the stuff. He ended up working one summer between college semesters at Test Cell A, chipping away at concrete.

So what did he end up doing for his life's work? Anything in engineering?

He graduated from Occidental College [California] with a degree in physics. He now works for a contractor under a Navy contract and tells satellites what to do. One day he started to explain it to me and after about three minutes I said, `Son, I don't understand a word you're saying.` He said, `But Dad, I'm not even to the classified part yet.`

I had some fun with different things that maybe other people wouldn't have fun with but *I* had fun with them. We used to have these meetings and they always said well, we'll have them at headquarters. I was back there for one of these meetings one time and I always arranged to come in on Thursday and have the meeting on Friday and then I'd stay over the weekend because my son was assigned to the Pentagon at the time with the Air Force. One Friday afternoon after I had finished, I called my son at the Pentagon and he says, `Well, I can get a Metro over there. I'll be there in fifteen minutes or something like that.` So I went down—in those days you could park in the basement of the DOE building, the Forrestal Building, downstairs. Can't anymore but I'm sitting down there and here's this bunch of guys from the guard force that are watching the Forrestal Building; they look a little sloppy and I look up and here comes my son in his Air Force blues. I mean *everything on him* was perfect. His tie was perfect, his shoes were shined, everything was just—he was standing tall and was walking down into that garage and those guys were all looking around and saying, `Who's that?`

Did you say, `That's my boy?`

No, I didn't have to because he came right up to me and we went on.

But we got to do all kinds of things around Washington, D.C. Go to historic battlefields and stuff like that together and that was fun.

[01:09:43] End Track 2, Disc 1.

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

I did want to ask you a question. Who designed the NRDS tests? Was that NASA?

No, the reactor tests were designed by Los Alamos [National Laboratory] and Los Alamos ran the scientific part of the reactor business. Other contractors throughout the United States did things with the rocket parts. Rocketdyne built the pump, other people designed the nozzle; it was a large conglomerate. If you can get Dick Howard in here, he can tell you who all those people were and what they were doing.

OK. Designers. Now it looks like the test beds didn't require the same drilling and mining preparation that the other ones did then.

Well, no, the test beds for the nuclear rocket were all on flatcars on the railroad; it was a plug in, unplug thing. Reactors were put together in a building called the MAD Building: Maintenance, Assembly, and Disassembly Building. They constructed the reactor on a little house structure in the middle of a flatcar and then the reactor was on top of that. Piping and electronic stuff came in from the wall at the test cell and you just rolled the flatcar up to that wall and, in effect, pushed it in and then connected the piping and the electronics.

So would this, then, go flying—?

No. The reactor's pointed straight up, so all the force went through the wheels of the flatcar onto rails into the ground. There was concrete there.

So this was kind of into the atmosphere, then.

Yes, it would've made a lot of water.

Oh, it would create water?

Yes, hydrogen when it burns produces water. Hydrogen and oxygen when they combine.

H_20.

Yes. So the byproduct of the reaction of the effluent through the reactor is benign, but the radioactivity that gets pulled off by attrition of the tubes and stuff like that is the part that's not good.

One more story about NRDS that I have listed, is when we got the administration building built and moved our offices down from the Engine Test Cell One underground control room. There was a sewer outfall and Kurt Kincer decided it was stupid to waste all that water so he built a little channel for the water and grew watermelons and gourds. Anything that you can peel is not going to hurt you, so we had that. We were going to make a park out there and the VIPs sort of put the kibosh on putting in tables and stuff.

That sounds like that'd be nice PR.

Yes, well, the sewer outfall has a certain odor to it regardless of what you do.

OK, maybe it'd take some of the damper off of eating the watermelon.

Well, I had watermelons and gourds and squash from there; they were perfectly delicious.

One of the jackasses got pregnant so Kurt Kincer decided he'd put her in the fenced area down there at that sewer outfall so she'd be protected from the coyotes. They put up **[00:05:00]** this fence and they put a couple of the females in there. He went down one morning and said, Oh, my gosh. I went down a little bit later and here in the fencing was the perfect outline of a coyote. She'd kicked him right into the fence. I mean *thunk!* [Slaps hands together] She disappeared and pretty soon she showed up with a foal.

Life goes on.

Yes, and she was perfectly capable of taking care of herself, evidently, or one of the ones with her. We don't know which one kicked the coyote.

I started a story which I didn't finish back a ways about the jackasses. We wanted to get rid of them out of the immediate area for this group of visitors from NASA. One of the reasons was that the jackasses tended to copulate on the grass in front of the administration building and that was not something that the VIPs were supposed to be exposed to. Anyway one afternoon, instead of going home, Jay Hayes and I got two four-wheel-drive vehicles and started herding the jackasses into the Calico Hills which is to the north of Jackass Flats. We figured if we pushed them up there by a spring, maybe they'd stay there for a couple of days. So we were herding along and it was just going real well, and we got up into the Calicos and went around a bend and they disappeared up a gully so fast, I had to blink. I was just absolutely surprised. So I drove around up there to see if we could gather them back up together on this little flat area up above the road. They were spread out all over the place, there was no way. We could've done it with horses, but not with vehicles. Once we got into that gully area up there, there was no way. Well, I broke the front drive shaft while I was running around up there on a rock and so we had to crawl under the truck and tie it up off the ground and then we drove back. I wondered what trouble I was going to get into for breaking up the truck; it was assigned to Wackenhut, a guard vehicle. I never heard another word about it.

Anyway, we went home sort of defeated, and the next morning the guards reported that the jackasses had gone down past Test Cell C and headed to the south end of Jackass Flats at full bore, so they weren't going to go where *we* wanted them. Well, there's a little spring a ways away from everything down there and they went down there and stayed there for a week. So what we wanted happened, only not the way we wanted it to happen.

Did they come back?

After everything was over, they spread out all over the test site.

You want to give me some of your JVE [Joint Verification Experiment] stories?

All right.

Now did you go to Semipalatinsk?

No.

OK. So—

I was third or fourth in line to go if they needed someone else, but my job was to communicate with Semipalatinsk by computer. I got in touch with some Russians in Moscow and asked for permission and they said, `Well, it won't work, but you are perfectly welcome to try.` So we set up the phones and everything, fully knowing that they were going to be listening to everything I sent.

[00:10:00] Well, mostly what I sent were schedules of who was going and who was coming, which are nothing. But I established a 300-baud line. Now we're now talking about 15,000 baud in the United States. Three hundred baud sounds like nothing, but it worked 90 percent of the time. We were told that it was just a bare wire telephone line that we were using, but that was kind of fun to have done.

Now they got telemessages from Semipalatinsk daily.

To me.

You were the one who received those?

Yes.

Oh, OK, because Holmes and Narver, I've got some copies of those, and so you were the one that received those messages?

I was the one who handled the computer from this end

OK. Guy [Gylan] Allen, you know, was one of the ones that signed—

Yes.

So you got these messages from Guy back and forth, then.

Yes.

OK. And then you passed them on to Holmes and Narver?

Yes.

So what did you think about what was going on over there? Did you feel like they were getting their problem solved or having an interesting experience?

You know the story about the lettuce?

I do. Tell me your version.

Well, one of our esteemed colleagues who was at the time—

There was team leader—

—Security was griping on the computer about the fact that he couldn't have a salad.

I didn't see any of those, I didn't see any of those gripes. I guess not all of them got passed on to Holmes and Narver, huh?

No, oh, no.

You're privy to the ones that were the more interesting ones, then.

Yes, but I didn't save any of them.

Oh, that's too bad.

Anyway, he was having conniption fits about the fact that the food that the Russians were serving him was so bland and so heavy, he wanted some salad. So one of our people, it wasn't me, arranged to ship a crate of lettuce from Germany to Moscow to Semipalatinsk. The crate came in and it got into the kitchen where these Russian cooks were and they looked it all over

and they'd never seen it before. So they boiled it all because they thought it was a form of cabbage. He went through the roof.

One more shipment of lettuce to be sent over, is that what happened?

Yes. We brought him home.

Oh, you did. Because he was just a little—

No. It was his time.

Can you tell me what his name was?

Yes, but I'm not going to.

Oh, darn.

He's still a friend of mine.

One day I was in the hallway at DOE upstairs and I was talking to the librarian, a lovely young woman who worked for REECo [Reynolds Electrical and Engineering Company], and we were standing there talking and her boyfriend walked up and stood there. No big deal. This same guy from Security walks up and he decides to be a smarty so he says to her boyfriend, `You better look out or Nutley will steal your girlfriend.` The boyfriend looked down his nose at the guy and he says, `We older men know how to share our women.` Now I was almost on the floor laughing so hard I could hardly contain myself. This guy mutters and **[00:15:00]** walks away.

Well, we did another little thing. I was with this same guy one day.

Oh! And you won't tell me his name.

No, the boyfriend. He and I were at Mighty Derringer together, we were inspectors.

Now what's Mighty Derringer?

Mighty Derringer; we'll come to that in a minute.

During Mighty Derringer we had a trailer up in Area 26 that was a Mexican restaurant, and people were supposed to go in there and find out information about the bad guys. Anyway, this girl's boyfriend and I went up there to have dinner one night. I'm sitting there, we're having a nice dinner, nice Mexican plate and everything and all of a sudden he turns to me and he says, Now, Leetle Brother, I want you to give me the money that Mama gave you because I'm going to go in the back with Leetle Seester. I'm absolutely stunned. For me, this is impossible; I can't say anything. But all of a sudden it comes out of me, Now, listen, Mama gave me that money for an emergency, to get home with, and I'm not– And we argued about the money so he could go in the back room with Leetle Seester, and everybody in the place is almost laughing themselves to death. That guy was fun, we had a good time.

Anyway, let's go back to joint verification. We'll get those done and then we'll come to Mighty Derringer in a little bit. You've heard the story about the Disneyland visit?

Tell me your version.

No, I wasn't there, I only heard it. This bunch of guys wanted to go see something on a long weekend when they were here, the Russians, and so a couple of people decided, on their own time and with their own money, they'd take them. They took them out to the coast and they saw one of the beaches in California and then they went to Disneyland. One of the reasons they went to Disneyland was because [Nikita] Khrushchev wasn't allowed to and they thought that would be great.

Anyway, they went into Disneyland and they got on that space ride; they got in line and stood in line and stood in line and stood in line, and the Russian guy that was in charge says, Well, I'm sure this is a wonderful ride and everything but I don't think

we'll do it again. So they got in and went on the ride and they got off and as they're walking off he said, Let's do it again.

Oh, that's cute. That's cute. I think Chuck [Charles] McWilliam. I think he tells that same story.

Well, I know the guy and I can't say his name that was in charge of that. I should get you his name because he's told me quite a few stories. One of the other ones he tells—

[Stephen] Ronshaugen?

Ronshagen, yes. Have you talked to him?

Not yet, he's somebody I don't have the telephone number for yet. I kind of heard him a little bit. But I understand he had a good story about when they went on the beach and got busted on the beach.

I haven't heard that one. I have Ronshaugen's phone number.

Oh, that would be wonderful!

I'll send it to you.

OK, great. Yes, my problem is sometimes getting their telephone numbers, because I hear their names, I find their names associated with different things, but then I'm kind of stuck.

The other story about Disneyland that *I* like was when they went through the Haunted House and one of the engineers said to Ronshaugen, he says, Where did you get this technology? You know, the ghosts and so forth in there. Now here's a guy that tests nuclear weapons for a living in Russia and doesn't know anything about that kind of stuff.

The animation and—

Yes, they compartmentalize their people.

Now one day I got a telephone call from the test site during the joint verification and they said, We've got two guys that came in late and they didn't get to go shopping.

[00:20:00] Could you take them shopping? And I said, Sure. I'll meet you at Jones and the freeway. So I drove up there and met them. They wanted to go to a place where they could buy some clothes for their wives and their kids. So I took them down to Penney's in Meadows Mall. One guy bought this *beautiful* little outfit for about a four-year-old girl. *Just* gorgeous, you know, dress and underpants; the combination thing. And the other guy didn't see anything he wanted. We went to Sears and looked around, they didn't see anything they wanted. I took them over to Target on Decatur. They had an interpreter with them and me, so there were four of us. One guy and the interpreter went off together and the other guy and I went off together; he didn't like it when I was standing next to him while he was buying underclothes for his wife. They bought shampoo, you know, six bottles in a pack, soap in a pack and four or five Timex watches each.

Then we went to a grocery store; Smith's that used to be up on Jones and the freeway that's moved down Jones a ways. Maybe you don't see that. Anyway, we started through there and they bought vodka, American vodka, one bottle and the cap leaked and so I took it back and got a new one for him. This one guy that was with me who didn't speak any English, I didn't speak any Russian so I can't—that's my fault, not his—he kept saying something and I finally got "chocolate." And he kept saying something else and finally I said, Lactate? He wanted milk chocolate. Well, he could not believe his eyes when I showed him, what, eight feet of chocolate that he could pick from?

We're getting ready to leave the store and the interpreter comes up to me and he says, They'd like to buy some bubble gum.

Being the nasty old son-of-a-gun that I am, I said, Do you have any children?

And he said, No, I'm not married.

And I said, You don't have any nieces or nephews?

And he said, Well, yes, but I'm not around them much.

Well, if it was a snake it'd have bit you. There was one of these Cossacks there with the long strings of gum in packages, so they bought a couple of boxes of that pink bubble gum to go.

But there was a day I was scared to death I was going to start World War III. My boss called me into the office one day and says, I want you to go to the test site tomorrow, get yourself somebody from RADSAFE [Radiological Safety] with an instrument. When they open the storage area where the Russians' truck is stored, I wanted it checked out before it's moved out.

And I said, *Me*?

And he said, You.

So I got on the phone and got a RADSAFE person assigned to me for the next few days, went out and got him, picked him up, went down for this *gala* opening. In Mercury there were a series of shops and one of those was a carpentry shop. They closed it up and locked it up and they put the truck the Russians brought over with their instrumentation on it in there and sealed it up. So here was the great unsealing and all these VIPs and everything else, and they opened the door and in walks Richard Nutley and this guy from RADSAFE. We start around the truck and off his instrument goes. *Zing!* [Sound of fingers snapping]

[00:25:00] Now one of the ways the Russians' test people figure out what the nuclear explosive level was, they have a thing we call a flashlight. It's about the size of a regular two-cell flashlight. They bury them at different depths *above* the explosion. They dig them up *after* the explosion and they see what radiation was impacted in the radioactive materials *in* the flashlight. One of those had leaked. So I'm standing there and somebody says, Can we move this? And I say, No way! This young Russian German scientist, he looked so Germanic, it wasn't funny; I mean he had blonde hair, blue eyes, he did not have the rough features of what we think of as

Russian at all. He came up to me and started swearing at me in Russian. I didn't understand a word he said. He didn't understand a word *I* said. He was getting hotter and hotter and pretty soon here came the VIP Russian who spoke English.

Was this Viktor [Mikhailov]?

I don't know, I never was introduced to the man. I wish I had been because I'd have thanked him. He came up to me, I explained to him what the situation was, [Sound of hands clapping] no problem. We got a hold of the flashlight, we decontaminated the area and left and then they went on. It was just one of those deals where the language barrier was not good.

Yes. How did you feel about the Soviets being there?

I thought it was a good idea. I mean *they* know how to put out the nuclear bomb. *Our* only secrets are that we can make them smaller and more powerful in a small package. We're not going to tell them how to do that, but they still know how to *do* it. So do quite a few other countries around the world.

So you didn't have a real cultural reaction to it, then?

No, I thought it was a good idea.

Did it come as a surprise?

Not particularly, I knew about the negotiations years ahead.

Well, it had actually been in treaty since 1974, '76, that they would have access to each other's testing sites. I think what's puzzling is that it took fourteen years for the exchange to actually take place.

Security people. One more story about the Russians. I got called into the boss's office one day and he said, `Next month the Russians are coming, the initial party.`

The familiarization party. January.

Yes.

And he said, *You* are going to be on the bus with them and you're going to give a presentation on translucent dosimetry.

And I said, *Me*? I'm not a—

And he said, You're going to do it.

And I said, Yes, sir.

So I was contacted by the guys in charge and they said, Now, we want you to write up your speech so that we know what you're going to say and it can be translated into Russian.

And I said, OK.

Two or three drafts later I turned it—

You said translucent dosimetry?

Dosimetry.

Dosimetry. OK.

Instead of a film badge, they now have these things, little jobbies that you actually put in an oven and heat up, and when it heats up it gives off radiation in proportion to how much you've been exposed to. And then you don't have to keep rooms full of film badges.

Anyway, I turned this in to the people in charge and it came back, Cut it in half.

And I said, It's a page.

And they said, Cut it in half.

I did that and turned it in. And they said, Cut it in half again.

[00:29:56] End Track 2, Disc 2.

[00:00:00] Begin Track 3, Disc 2. [Problems with machine caused loss of recording. Text below added by interviewee.]

So I ended up with a single paragraph. I met the bus at the Meadow's Mall in the late afternoon and we started to the Test Site. On board were the advance party from the Russians and ur assigned personnel. The Russians were briefed on the different things they would be exposed to such as housing, transportation, etc. The American security officer gave his presentation and I looked around and no one from either side was paying attention. A security officer is a security officer in any language or country was my thought.

I got up and read my paragraph, one sentence at a time and the interpreter repeated it in Russian. I sat down, mine was the last presentation. I was sitting in the seat behind the driver and the interpreter was sitting beside me on the isle. One of the older Russians sitting across the isle called the interpreter over for a short conversation. The interpreter came over to me and asked if I would discuss the dosimetry with the two Russians; they both spoke some English.

After the discussion I sat down in my seat and the interpreter said to me, `Did you know you were talking to two Russian generals?`

The older Russians were dressed in 1940s style wool suits and the younger ones in brand new jeans and western shirts they had purchased that morning at the mall.

The powers that be had three rows of seats removed on one side of the bus in the back. In that space was a table with finger food on it. In all the years I traveled to and from the test site, I never had any service like that.

While in the food service area of the bus, I got into a discussion about the fauna of the desert. I told them that a red tailed hawk had been killed in an electric distribution compound with a wingspan of 14 feet. They would not believe me.

[Recorded interview resumes]

OK, I'm not really sure where it did that but we can go ahead and start with the DOE stories as long as it's working here.

OK. In 1970 I was surplused out with a lot of other people when NRDS was on its way to close out. I got a job working for the Clark County Health District and I worked there seven-and-a-half years. When I got out, I started my own business as a consultant in health issues.

Did it have anything to do with radiation?

No, I was the health planner for Clark County: how many hospitals do we need, and beds, and equipment, and so forth like that.

Was your background engineering?

No.

What was your background?

Economics.

OK, so it was more business end of things, then.

Yes. That project was a federally-funded project and it was on *its* way out and—

The Health Department thing?

Yes. And I got in crosswise with the mayor of the city and they decided—

Is that Oran Gragson?

Oran Gragson. And they decided they didn't need me anymore and so I resigned.

Political. Yes, political problems.

In the meantime a friend of mine at DOE needed me to do some work in the dosimetry area and so I got hired back working for the Department of Energy. I had lots of fun, did lots of fun things. I was the first one to receive a desktop computer and my job was to train others to use it.

And there was no more NRDS at this point, is that right?

No. One of the fun jobs that I had was the pig parts.

Oh, yuck! That sounds awful.

During atmospheric testing days you used pigs because their skin is very similar to humans. So they would put uniforms on these pigs and stake them out and put them where they'd be exposed. Then they'd go in and any pig that was still there would be slaughtered and cut up and then they would examine those parts of the pig at a later time.

Were they stored in like formaldehyde or something?

No, they were stored in plastic bags in a freezer. Two freezers full; two standing-up, six-foot-high freezers. Only nobody knew where they were. Everybody was running around saying where are these dang pig parts?

In a freezer somewhere.

I finally one day was chatting—do you know Martha DeMarre?

Yes.

Well, Martha and I did a lot of things together. I told her, I said, `Everybody's looking for these pig parts and nobody knows where–` And she said, `I know where they are.` Well, they were out at NRDS in the back of this radiation protection building.

She knew where they were?

She knew where they were.

Wonder how she found them.

Well, she was working in RADSAFE and that building was dedicated to RADSAFE. I went out there and sure enough, here's two big freezers full of pig parts. So I instructed REECo to bury the pig parts and REECo kind of sat on their *derrieres* and didn't do anything about it and all of a sudden, the rules got changed and the dang things had to be run through a whole bunch of tests. If they'd have done it right away and got them buried, we wouldn't have had any problem. But

then we had to test them to see what kind of radiation they had before we could bury them, which cost us a lot more money. That always irked me.

Now here I am back at Area 26. It seem as though a scientist from UCLA **[00:05:00]** [University of California, Los Angeles] had paid to have all the samples that UCLA had collected offsite—flora, fauna, et cetera—shipped to his home in North Dakota where he was supposedly retiring. Martha could tell you his name, I can't say it right now. Anyway, we found out about these samples and all this stuff and we paid to have them shipped from North Dakota back to the test site. I found a warehouse on Area 26 that was empty and we put them in there. Well, we wanted to know what they were, so one summer Martha and I and three college kids that were on summer work indexed that whole collection. Martha hates me to this day because I had flat tires and I would just get on the radio and call Mercury and they'd send a guy out and he'd change the tire. I mean what's the big deal, you know? But she didn't want to ride with me ever again because I had these flat tires.

She just felt like flat tires should not happen when she's in the car?

Yes, and I think it only happened like two, maybe three, times. We weren't in any big, huffy rush to go anywhere. We stood around and threw rocks at the lizards while we waited for the guy to come change the tire. It never really bothered me but it sure did bother her, to this day.

One of my assignments was to establish what we called the Coordination and Information Center [CIC]. I went to several different AEC, now DOE, facilities and looked at *their* methods, particularly in Tennessee, and made recommendations to my supervisors about how we should do it. As far as I can remember, all my recommendations were followed. One thing I told them, don't write summaries; don't hire people to write summaries. The money is just horrendous. We

can keyword the document and we'll get the same kind of thing. And so I'm told there are now three hundred and fifty thousand documents in that collection.

You mean the one that's upstairs? *[Interview was conducted at 755 E. Flamingo Road which houses the* Atomic Testing Museum *on the first floor. The* Nuclear Testing Archive *(formerly the* CIC*) is on the second floor of the building.]*

Yes.

Oh, I thought they said—oh, I thought they said—wow! Three hundred and fifty thousand. Wow!

All of them are numbered, all of them are on the computer. Two or three I wrote.

Yes, I got everything I could find on JVE and the Soviet Union.

Through them?

Yes.

Well, good. It started out we were only going to do documents on fallout in the United States. And pretty soon I started saying, `Look, this is silly. Fallout in the Pacific are intertwined in these documents anyway. Why not collect it?` And they said, `OK, we'll add that.` Then the policies and procedures established by AEC, ERDA [Energy Research and Development Agency], and DOE headquarters are important to be in this collection. So those were the three areas that we collected primarily, was information on fallout from tests, Pacific and continental, the procedures and policies established by, you know, exposure to radiation, and testing procedures and policies, unclassified. Everything in that collection is unclassified. That was my biggest headache, we'd get in a document and it'd be **[00:10:00]** marked classified and right next to it is another document with the same title and everything that's been *de*classified. Those were hard jobs.

There's duplications, too. That's puzzled me. For example, a REECORDER *newsletter will have one label here, and then another label here, and it's the same one.*

Yes, but the cost is ridiculous. The cost of search to find out whether there's dupes is ridiculous. It's just better to put in a document like that four or five times, cost wise, than it is to play the game.

OK. Because that was something that puzzled me.

I didn't have a lot of money. We sure got a lot of documents.

Yes. And that's the beginning of the Nuclear Testing Archive; that's what they call it now. And the Reading Room; Jeff Gordon mans that.

Yes. I notice some of the things *I* edited are still on the shelf there.

Now when did you do that coordination?

I don't know. Martha would know the dates. I wouldn't.

OK. So you were before Martha, then?

Oh, yes. Well, she was working at the test site as a RADSAFE person for a long time before she took this job. Then we used people from the Coordination and Information Center to do a fallout study where we went to locations throughout the West mostly. I think we were in Memphis [Tennessee], which is not west, but we didn't do the East Coast and we didn't do Canada and we didn't do Maine and all those places. And we didn't do Florida. But we sent teams and they would go to a location and find a grass lawn that the people swore hadn't been dug up in ten, fifteen years, and they got permission to take a core sample out of the lawn down two feet. That material was all put in containers and shipped here, and then we processed it by grinding up the rocks and mixing the rocks and the grass and the pebbles and the soil all together, then taking a small sample of that and running it through a very fancy radiation counter. That would tell us the daughters of uranium and plutonium that were in the soil. There would be no plutonium or uranium in the soil now, but there would be the daughters.

The daughters?

Daughters, yes. When uranium splits, it splits into several things. They're called daughters. And it doesn't always split the same way but those—

So it's not always the same product, then, is that what you're saying?

Not always the same product, but if you know what those products are and how much of that is in the soil, you can say we had a millionth of a gram of uranium, a millionth of a gram of plutonium landed here. Does that make sense now?

Yes.

OK. Dr. Lynn Anspaugh, late of the University of Utah now, working for Livermore labs [Lawrence Livermore National Laboratory] at the time, wrote the reports on that. He included me as co-author, which I thought was awfully nice of him. Anyway, well, I figured out—

Now what was this book, then, again?

No, it was a series of reports on fallout in the United States. The Reading Room has them.

OK, and fallout study, and did you—Anspaugh, is that—?

[00:15:00] Anspaugh. What we found was that there was more fallout in northern Utah than there was in southern.

Ah. The upwind, is that—?

Downwind. The downwind people have an organization in southern Utah and they claim that we caused all kinds of health problems.

That's what I—the southern Utah would be Downwinders, wouldn't they?

Yes.

And the northern Utah would be—

They ignored it.

OK, no organization called Upwind.

Not that I know of. Maybe you ought to start one. Anyway, the most radiation ever received by a population was Las Vegas, from the shot Bee on March 22, 1955. Now that's the amount of radiation per individual in the community. It wasn't—

You remember how much that was?

No, but it was so small that it was—I mean it wasn't a tenth of a chest X ray. People offsite didn't get much radiation, in spite of all the political jazz. We had a group of people that we followed for years, that lived offsite around the east and northern side of the test site, and they'd go in for a free physical every year and a radiation reading. Well, twenty years after we started having this free testing, none of those people had died. Not one. So could you say radiation was good for them? No, but, you know.

Anyway, the fallout study was quite interesting. One of the fun things was the biggest reading we found anywhere was in a park in Albuquerque, New Mexico. And the Albuquerque Operations Office [ALOO] people went into *orbit* when they found out about it. We started messing around and we found out that two blocks away from that park *used* to be a place where they *milled* uranium.

And so that's the reason why the fallout was—

And that's why the fallout in that park was so high. Boy, were they happy about that.

So how do you feel about the heavy criticism of the test site as far as, you know, that they disregarded safety?

I think it's an emotional response by people who want somebody to blame for their problems and they have no scientific basis for their arguments. I mean I've worked in the industry for thirty years.

But they've managed to get, you know, legislation that allows them to get—

I know. But it's an emotional response, not a scientific response.

So you think even the political, well, compensation victim laws, that they weren't well-founded either, then?

No. Do you know about the sheep?

Tell me about them.

One year—and you'd have to look this up in the Reading Room, I don't remember what year it was—this guy claims that a fallout cloud came across his flock and damaged them to such a point that three-fourths of them died and he wanted money for them. He raised all sorts of Ned, and we sent veterinarians out to look and they couldn't find the bodies or bones. They took some of the sheep that he claimed were still alive that had been poisoned by radiation and they put them in a pasture and fed them extra nutrients and gave them plenty of water and they recovered. You don't recover from that heavy a radiation dose.

So you think he was motivated by profit, then?

Yes. The other flocks that were in the same area were all fed extra nutrients during that **[00:20:00]** year and they didn't have any problems. So we weren't too sympathetic about his—

But for some reason, you know, the test site's evidence seems to kind of get lost.

Well, you don't believe the government.

Now, Mighty Derringer; Eighty-six. This was an exercise to show that several different government units, including the Department of Energy, could work together to find a nuclear device in the hands of the enemy, whoever they might be. So we went out to NRDS again *and* up to Area 26; we established a place where they hid this fake nuclear device and had it guarded by the enemy. We had the Mexican restaurant where people were supposed to go and learn about

the enemy and we had all kinds of situations going. A guy from the CIA [Central Intelligence Agency] came to inspect this. What we had done is, we had gone into REECo and everywhere else we could find anybody with a clearance that spoke Spanish. So we made it a Spanish community, and the people in the community spoke Spanish; if you're going to go to a foreign country, they're going to speak another language anyway, right? And the CIA man blew his stack about these people speaking Spanish. Everybody ought to be speaking English. And all of a sudden he stopped and said, I blew it, didn't I?

I took my PC [personal computer] out there so we could write reports on it. I was the only one that did, so here we were back in the administration building at NRDS, up in the top observation area and the government units and everybody's borrowing my computer to write their reports. No piano.

Still no piano.

Still no piano.

Never got one.

Downstairs in the A&E building, near the front of the building, was a shower, and I knew it was there and I conned one of the maintenance people out of the key. So the boss man of this exercise and I had a shower in the building and no one else did. That was nasty, wasn't it?

Did you arrange that?

I arranged that.

Bob [Robert] Nelson, he was in charge of this. The exercise was the most extensive and most life-like that anybody had ever been on and they really gave him a lot of credit. At the time the big hotel in Carson City had a room they called the Derringer Room and I got one of their

bolo ties with a derringer on it and we gave him that at the end of the exercise. I have two cups that we got with Mighty Derringer on it. It was a fun time.

My father worked overseas quite a bit and was in Jordan and brought me back one of those *keffiyehs* [headdresses], with the black things that go around and so forth. So I slipped that out there and for the end parade I got this guy who had a Cadillac convertible out there, the head of maintenance, who for some reason liked me, I don't know why but he did, and so I put on the *keffiyeh* and wrapped a bed sheet around myself and rode around as an Arab oil man in the final parade.

[00:25:00] *Now what parade was this?*

We had a little parade, just a bunch of people driving around, out at the test site.

At the test site. Oh, it wasn't for a special occasion—?

Well, it was the end of Mighty Derringer.

Oh, OK. That sounds fun. That sounds kind of like playfulness.

Yes, it was kind of a relief that all the things were over and we'd finished it.

The Department of Energy had a well next to a shot area on Frenchman's Flat. They were pumping water out of there, gallons at a time to see when the radiation from the shot area would move some small distance, less than a hundred yards. This water then was dumped in a sort of a little channel that they built from the site down into Frenchman's. And of course as the years went by, trees, bushes, plants grew up around the water. We weren't getting any radiation. Some of the most beautiful deer I've ever seen in my life went in there and lived. I used to go and sneak over there and watch the deer.

Oh, how neat! Oh! Now were those atmospheric testings or were those—?

No, that was underground tests.

That was underground. But pretty much after the testing stopped, it was starting to recover and—

Well, no, the water is what made the plants grow.

I had an interesting little project one day, or like three or four days. This guy from, oh, what's the fancy museum on the Mall in Washington, D.C.?

Smithsonian?

The Smithsonian sent this guy and he wanted to look at snails in the springs on the test site. So I was taking him around to the different springs, and he'd go there and he had this little sieve and he'd sieve and sieve. The little tiny snails are eaten by birds and then they are transmitted to springs. He found one spring with snails in it on the test site of the ones we found. I kind of thought that was a waste of time.

Let's go back to Frenchman's Flat.

Sure. Bricks.

When we were doing the fallout study, one of the things as an adjunct to that was we would go down to different people and we'd buy that ceramic piece that's on top of the toilet or replace it, or if it was a brick home we'd get a brick out of the wall, or take a core out of a brick in the wall, and we'd test that as an adjunct. Well, on Frenchman's Flats there's a row of buildings that we call the Motel, and one of those, well, I think maybe two of them, are bricked up on the side facing where the nuclear explosion was, during the atmospherics. So I was to go down there and get a couple of bricks out of that wall to see how much radiation *they* had absorbed. Well, I got down there and whoever the mason was that put that together put it together pretty solid. There wasn't any way to get a brick out of there with a small hand chisel and a hammer. A bunch of guys came by from REECo that were doing some other maintenance work and they had the

[00:30:00] sledgehammer and a couple of big heavy-duty guys and they broke the bricks out for me. We sent one brick into the study and put one of the other bricks in the Area 26 repository. But that was an interesting occasion. That wall was there to last forever.

Well, that's all the stories I can think of at the moment.

Well, that's great! That's great.

And I've added like seven or eight to my list as it was. If you'll give me a copy of those CDs, I will listen to them and see if I can come up with anything else.

OK.

[00:30:50] End Track 3, Disc 2.

[End of interview]