

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

**Interview with**  
**Katie McWilliam**

**July 9, 2004**  
**Las Vegas, Nevada**

Interview Conducted By  
Suzanne Becker

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Produced by:

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## Interview with Katie McWilliam

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

**Suzanne Becker:** *So if we could just start with your background, where you're from, a little bit about your family, and where you originated. We talked about it earlier.*

**Katie McWilliam:** OK, I'm from—do I need to say my name?

*Sure.*

OK, I'm Katie McWilliam and I am originally from Buffalo, New York. I went to University of Rochester, where I majored in geology. I got my master's degree at University of South Carolina in geophysics, and then after graduate school, obtained a job with the [U.S.] Geological Survey [USGS] in Menlo Park, where I worked up from junior seismologist to seismologist, working on an earthquake prediction experiment. In the late eighties, the opportunity to become a technical consultant for treaty negotiations and treaty monitoring came up, so I switched to that position. That's how I got involved with the Nevada Test Site, because I had to come out to the test site for training and such so that I could understand what I was now having to consult on and work on for monitoring.

*And was this contracted?*

No, I worked with the government. I currently live in Boulder City. I'm married to Chay

[Charles]

McWilliam. We have three older children that are [from his previous marriage], Chay, Amy, and Becky, and then he and I have our seven-year-old son, Jamie. We currently own an engineering

company that specializes in building evaluations, and we are also in the process of cruising on our sailboat, with the goal of eventually circumnavigating the world.

*Wow! Very cool. How long have you guys been out here in Nevada?*

I have been in Nevada since 1991.

*When you came out to do the work at the test site.*

Right. Initially, before that, there was just visits and such, and then I moved out here in '91. And when I made that move, which was after I met Chay, I then switched and worked for DOE [Department of Energy] in environmental technology, technology development.

*OK. How did you guys meet, if you don't mind me asking?*

We met in a training class back in Washington, D.C. when we were going in to monitor the Soviet testing. They had what they called the delegated personnel, and all the delegated personnel had to be trained. So he and I both had to attend that training, and that's where we met.

*And that was in the eighties?*

That was 1991.

*OK, so early nineties. So I guess I'm curious when you moved out here, or when you came out to the test site, had you had any thoughts about the Nevada Test Site or did it mean anything to you, or was it just another place that you were sort of going for training?*

I really had no clue what it was until I got involved in it and came out, and that first training was just a generic orientation of the test site. Then it got more specific the last few times that I was out for training, either about the weapons or whatever.

*What were your impressions?*

That it was huge. Apparently very well run. It was like a city which, you know, when you hear about it, you don't realize that until you—

*I think it's sort of the size of a small city.*

Yeah. Had heard so much about what went on and it was just kind of good to put the faces with the names I had heard, people I had spoken to on the phone, and then to actually see how it was all done. And what a resource, which I then tried to convince the environmental side of the world that it was a resource they should be using for developing technologies, but they just didn't want to take advantage of this huge—

*Yeah, there seems to be a pretty good split between the two. So you think environmentally it's a good testing ground?*

Yeah, they can do anything they want out there, pretty much, and it's not going to hurt anything. They can even, you know, some of the things—well, it's the desert but we need to create like the conditions at Savannah River Plant. Well, then, create the conditions. Build something and change it. You [00:05:00] can do that there. So I think it's a unique place that should be used for any kind of testing that needs to be outside and [that] type thing.

*Right. So you came here in '91, you moved out here permanently in '91, and once you got out here, did you continue your affiliation with the NTS and continue to train, or—?*

No, I switched then completely, got out of the testing stuff, and switched over to the environmental technology. And at that point is when testing stopped and there was no more, so that's why I didn't even stay involved in it, because it wasn't.

*Can you talk a little bit about that, what that all entailed, when you switched over to the environmental aspects?*

From the standpoint of just having to switch my whole mindset of what I did?

*Yeah, all of it. I'm just curious, [about] what you actually did.*

My focus when I switched to environmental technology development was working with EG&G [Edgerton, Germeshausen, and Grier] to develop technologies to facilitate remediation. I worked with remote sensing folks, and then other non-intrusive ways to like see what's inside barrels and stuff, so that was kind of the focus of the projects *I* was managing. And then some kind of sideline overview management of some of the experiments that were going [on] out at the test site, like—it's probably not even being used anymore—the treat-ability test facility. I got to go through the whole rigmarole of getting it approved as a nuclear facility. It really didn't meet the criteria [to be classified a nuclear facility, but we were kind of the test for how to do that. That was, all new requirements that were coming in. So I did that for three years, and then my husband and I had started our own company and I left to run our company.

*Now, I guess I'm curious about your experiences out at the test site with other people and you mentioned that it was like a city there. Like a sense of a lot of camaraderie?*

Camaraderie. It was unusual when I did come out because I was unusual, being a female in the technical arena. I was one of maybe three female seismologist-geophysicist-geologist-type that *I* knew of—I'm sure there were others—that were doing kind of what I was doing. But I never had—I mean, everybody just respected me and just treated me as one of the whatever. I never felt excluded or odd-man-out or anything.

*Right. So gender was not really much of an issue?*

Not for me. And it never has been, no matter what position I've been in with whatever company or [the] Geological Survey, wherever, it was never an issue. The only time it *was* an issue was when I was negotiating the treaties in Geneva with the Soviets.

*I'm sure.*

So that was a different—so that's kind of where I got the flip side, was the dealing with them, and then having to apply just the whole test site operations to what I was doing in Geneva and in Moscow.

*Right. So, I guess, skipping ahead a little bit, maybe, just I'm curious about how that all came about. How did you end up negotiating the treaty with the Soviets? How did you end up as part of all of that?*

I became known as the honest seismologist. Seismology is one of the ways to monitor nuclear testing. So I just started slowly. I was just kind of [a] lower level consultant and just developed the reputation for being honest, not having any agendas. I just kind of moved into it, and I understood the politics involved, so I was able to balance the two but still present a good technical solution that wouldn't just forward one agenda or another agenda. And I just kind of developed my own niche.

*Was there ever pressure to forward an agenda or maybe—?*

Yes. Oh, yeah.

*Yeah?*

Well, with the group I was working with, there was DOE, DoD [Department of Defense], State Department, Arms Control and Disarmament Agency, Joint Chiefs of Staff. So there was a lot. Of course, they all have their own reasons for what they want, and so I was able to stay back [00:10:00] and be the objective [person]. And plus all the labs. In addition to DOE Federal, there was Livermore and Los Alamos, and Sandia had representation as well. And they all have their own things that they're either protecting or want to have or whatever.

*Wow, it's amazing that you managed to stay above all of that. It's interesting. I've talked to other people who have done various jobs out there and, have had a really—same thing, there's always been pressure from one side or another to do things one way or another.*

Yeah, and I just always stuck to my—what I knew was technically right and didn't—

*You never got much flak about it?*

Not that I knew of. They might've complained about me behind my back. I think sometimes they knew that if they could, you know, not sway me but give me the evidence to say *Yes, I'll support this position*, they knew it would be an important thing to have my support of it.

But there wasn't—I never, never got nasty, never, nothing. I just tried to stay honest.

*And so from that, because of your honesty and the fact that you were very objective and obviously good, you were sent to negotiate?*

Right. I was on the delegation, and I actually chaired, across from the Soviet general, the seismology working group for the development of the protocols for verifying the tests. And so that was interesting because one, I'm young, female, look younger than I am, and would be at the table with all men, and they would have comments like, *The men are here to help you. I'd say, No, the men aren't here to help me.* And so it was interesting because that was a new thing for them.

*Yeah, I bet. How large were the delegations?*

Well, the *whole* delegations were, if you include all the technical people and the policy reps, probably twenty.

*And were you the only female?*

Sometimes. I was trying to think. Usually, I was the only female technical rep. I'm trying to think if the labs ever sent females over to work. A lot of them were on the stateside, supporting

it. And then some of the policy reps, you know—that would come and go because they'd change out every six weeks, every two months—would be female. I was definitely the odd man working amongst all these old, experienced testers.

*And so what sorts of things did you come up against, just with that as a factor?*

Amongst the seismologists, there were some that, I think, felt threatened because I wouldn't [give in]; they were pushing their agenda or, you know, wanting things to go a certain way. And I didn't—it wasn't necessary for what we were trying to do, to have to do what they wanted. So I think there was—I don't know, I wouldn't say jealousy, because these are grown men, but some kind of friction that way. And because they were more senior than me, and here I was chairing, so it was, you know, I think there was some [jealousy] there. But amongst all the other folks from the labs, I never felt that at all with them. They just respected the position that I had been given and they supported me. I by no means knew everything they did and I would draw on their resources to do what I needed to do as the chairman of that group, but it was all consensus positions that we'd be putting forward. And I learned a tremendous amount from all of them because I mean, I just didn't have the background they did. I was like a sponge, sucking it all in.

*Now, how long were you over there?*

I started going in '89 and I did a couple of two-month stints, and then in '90 I was there for six months. When they went into the mode that the protocols had to be finished, I stayed the whole time, and then came back and then went through the whole ratification process with Congress.

**[00:15:00]** But the interesting, you know, it was just the Soviet reaction to me [that] was just interesting. Some were fine with it. Others were kind of condescending, but not in a bad way because that's just the way they were but, you know, would come up with a pet name for me instead of calling me by, you know, the formal Miss Poley or whatever, which was my maiden

name. So that was the—I'm trying to think of any other things with—I think they just couldn't believe that I was doing this all by myself.

*Sure. Did that make the job more difficult?*

It sometimes did, and it would depend on who the Soviet side had sitting in in the groups. The one general who was their head seismology guy, I mean, he was pretty cool about it all. And it was kind of awe inspiring to think, here I'm sitting across from this general and doing this and we're understanding each other and talking the same language. He would know what I wouldn't budge on and I knew what he wouldn't budge on and it kind of became a—not a jolt but, you know, when it came to that, we'd both smile and be like, *no*. And then at the *end* of the negotiations, General [Sergei] Zelentsov actually—because, you know, everyone gives gifts and stuff and all these things, and a lot of it's the normal Russian books or just typical Russian gifts. But General Zelentsov gave me a dove that was carved out of one piece of wood, and *really* intricate, to hang, and it had a string to hang, and I just thought that was—it was something different and just kind of—and then he signed it, you know, “Best Wishes” And so that was kind of a neat—I took it as a sign of OK, they *did* respect what I was doing and I wasn't just this little kid. Because I was pretty junior in a position that normally would've been held by a more senior person.

*Right, and you were fairly new into the field at this time.*

Oh, yeah. Yeah. And just like I said, I was a sponge, sucking up everything from everybody that was over there. I would go in and talk to the lab guys, I'd go in and talk to Jim Magruder, you know, and whoever was there, I'd go in and just pick, pick, pick so that I could really understand what I was doing besides just my seismology background.

*Were you able to gauge at all the attitude toward America or Americans at this point? I'm curious about this juncture in history.*

By the time I got involved, I think a lot of the walls had come down already, at least for these people. They had all already been to the test site and kind of had their eye-opening experience. I mean Chay's got so many stories about, you know, taking them to K-Mart and grocery stores, and them thinking it was a front, that this couldn't be real, and the Americans finally said, *You guys, here's the phone book. You tell us where you want us to take you and we'll take you there. And that's how they finally got them to start accepting that, yeah, this is what [it is like]; we have all these choices.*

*So they thought that all of the Wal-Marts and the K-Marts were all a front for—?*

Yeah, and because we picked where we were going to take them, that we just, you know—

*So you were showing them a very specific—*

Yeah, they were. I wasn't going at that right.

*Yeah. Interesting.*

So by the time I was involved, I think they had developed, at least in the technical, testing world, a real realization that we weren't bad and they're just like us and that we can communicate. And I think there was a real camaraderie. I don't think there was that fear, at least that I noticed. Some of them maybe still have it.

*Sure. This really helped to dissipate that a little bit.*

Yeah, they were on common ground and they were all doing the same thing.

*So you were over in Moscow, as well?*

I went to Moscow for a month in '91. Before we stopped testing officially, they had declared a test and we were going over to do the coordinating group to get ready to go in and monitor their test. I went over as the seismologist with that delegation. And that was interesting because—

[00:20:00] That was just interesting, without adding—some of it you don't need to know about.

*But we won't—sure we do.*

Well, no, it was delegation problems, but it was interesting to see who they trusted and who they didn't trust in our delegation. And the head of our delegation was from OSIA [Onsite Inspection Agency], and if they hit a roadblock where, you know, they just weren't going somewhere, even on a simple issue, they'd end up going—the general knew my husband, so he'd go to Chay during a break and say, *This is the reason why we can't do this. We're really not trying to be obstinate. And one was a simple film issue. There was a requirement that the film be developed within a certain amount of time. They were trying to get us to supply the stuff, and he finally said, We don't have that technology available to us. And so Chay had to go back to the head of the delegation and say, Here's the reason why, and they're embarrassed, or whatever. So they worded it such that either side could supply, depending on what the situation was. And that came out more when we went over. There, I didn't notice that as much, and I think it's just by that point they were trusting of some people and they wanted to be honest about it, Let's get the job done, but we don't want to say we can do something if we can't.*

*What was it about some people that they trusted more so than others, do you know, or have any sense of that?*

I don't know. Chay had been involved for so long with them, from 1988 on, because he was the head of del *here* when the Soviets came over to monitor *our* test during the joint verification experiment [JVE]. They just knew he was a straight shooter.

*Right. They just started and established relations?*

And then when all of a sudden there's all these new players that had never been involved before—because when the treaty got ratified and then had to be implemented, they turned the

implementation over to the Onsite Inspection Agency, which is a Department of Defense organization, to do the START treaties and all that. And that was a switch. All of a sudden, there were different players involved now than were ever even thought were going to be involved when the treaties were negotiated. And I think that threw the—our Soviet counterparts were now Russian counterparts and that was a switch, too, because when we were doing a lot of the negotiations, they were Soviet. And then when we were *in* Moscow is when the coup occurred, and we got out the day before the coup happened, and then it split up. All of a sudden, *now* we're having to deal with Russians and Kazakhstan and—

*Not just Soviets.*

Yeah, so it was a kind of a switch, even though—and then Kazakhstan had to ratify, and so it was that whole flip situation got folded into it, too.

*So that's really an intense time to be there. Did you have any sense that that was going on or that this was all sort of brewing?*

We had—at least *I* had no idea. We were actually out—where were we? I guess we were over near the American embassy, doing something, and got to see where—we knew Yeltsin was doing stuff, and that was like right before we left to come home. And then when it all happened, it was right where we were. So if we had stayed longer or it had occurred earlier, we would've been right in the middle of it, so it was just—but there was no real indicator that it was going to—

*Wow. And you guys got out the day before?*

I think it was the day before we came home, and then the next day, two days later, we heard that—

*Wow!*

Yeah, because we were just traveling around Moscow doing—when we weren't doing the business we were doing sightseeing or whatever.

*How was Moscow?*

Kind of drab. You look at something from a distance and you go, Ooooh, that looks pretty, and then as soon as you get up to it close, you're like, oh. It just, you know, not much maintenance. A lot of things probably were very beautiful at one time, but they just weren't taken care of. You know, we went to a mall. It's like going into a little [00:25:00] Mexican town where there's these stores that have nothing in them except for, a few items that they sell. And then Chay said he noticed when we went back in—because he had been in twice before that, before the coup and the dissolution of the Soviet Union [USSR]—the people were now starting to have smiles on their faces, whereas before, he said, they'd just be walking. There'd be no smiles. They wouldn't look at you. And they wouldn't—like a group of people that normally would walk down the street talking to each other like we do, they'd all be walking but they wouldn't be interacting.

*Sounds like a very dark blanket of oppression over the whole place.*

Yeah. Once it all started to change, then you started to see—and you started seeing some of the younger people being more capitalistic, in their endeavors and a little bit more freedom that they had. But I don't know what it's like now. We were on the subway and there was a mom and her kids, and Chay offered the one boy—or girl, I can't remember which—a stick of gum, and just, you know, [his] face just lit up, and they gave us two coloring books, in Russian, with like fairytale stories that went with the coloring, as a thank-you for the gum. They had it in their—I don't know if it was their school stuff or what. So we still have those. We've got a whole little curio case with our Russian souvenirs, and we put that in there. And he said he could've never

done that on his previous trips. There would've been no—I mean they would've been like, you know, “Evil Americans,” because that's what they thought we were.

*It sounds like things—they didn't have a lot of the resources that we thought that they might have had and, I mean, taking that further, did you notice major differences between their program and our program and their testing and our testing?*

Very similar, right down to their two labs. The mission of each lab was a little different, just like our two labs have slightly different missions, and the personality of the people in the labs were—like Livermore people have a certain way about them, and Los Alamos people have a certain way about them. I don't know if you've run across that at all. Theirs was the same, right down to their Livermore component people were the same type of people our Livermore folks were. It was really weird.

*So this really is its own little universe.*

Yeah, it was—I mean—you can say, oh, I bet he's with Livermore, or Los Alamos; you could do the same thing with their guys, which lab they were with.

*How about the way that the public, if at all, the public perceived their program? Their people? We know here in the U.S., particularly in Nevada, there's always been a very specific public perception of what the test site is.*

Right. I don't know if their public even *knew*. I don't know. It was just such a closed thing that I would be surprised if, other than locals that lived near their test sites, I don't know if they even knew that they had a program. When you asked about similarities, the one place that they differed was their technology was for—not necessarily for the weapons themselves because I don't even know that level of detail, but for how you go about it, the drilling, the emplacement,

and all that, they were very behind us. They did not have the same technology as we did, but they got their job done.

*Right. Any other major differences or similarities that you knew of? Like, for example, their safety measures or their security levels or anything like that?*

You know, I wasn't involved enough to know that. I didn't get to go to their test site. I came into it just a little bit late to warrant being able to go. I was way too junior at that [00:30:00] point. So I don't know. That's a good question. I think their safety was probably—the security was high. Safety, I'm guessing they probably didn't have all the same safety precautions we take on things. But I don't know on that. That's just my opinion.

*Well, it's a valid opinion. You were there.*

Well, opinion based on just kind of hearing things and just getting a feel for what was going on.

*Sorry if my questions seem disjointed. I actually have a lot that I'm trying to—*

No, that's fine. And I'm an unusual person to be interviewing because it was a different—I was never at the test site testing, and I never got to *their* test site.

*I think one of the unique things about this project is that it's—when we're talking about the test site, we're talking about people and aspects affiliated—not just that work there, but are affiliated with, impacted by, and the whole universe that is the test site—or what the test site means, what that encompasses. And I'm fascinated just with your experiences and what you've done. And I think, particularly being a young woman going into this—*

Basically all male.

*Yes I don't mean to harp on gender, but I just think it's really fascinating; it's great.*

And what's interesting is I never, in *any* of my positions, even though I was *always* one of very few, if not the only, female, I never even thought about it. I was just doing my thing.

*Right. Right. Which sometimes, I think, is the way to go.*

You know, I used to get very upset when people thought they should get—or other women would think they should get special treatment or whatever, and I say no. If you can't do a job, you can't do it. I never felt, by anyone, that they didn't think I could do it because I was a woman.

*Were there other women that had problems?*

I don't know if there were in the testing stuff. There were people back when I worked for [the] Geological Survey that certainly thought they were being overlooked because they were a woman, rather than the fact that they just didn't want to work or didn't want to do what they needed to do to get the promotions. I don't know if—I don't know. I never felt that on our side, except from isolated people but, you know, that's always going to happen, but not as a whole. There was not that. And then just that little bit with the Soviets when they were like, *Are these people here to help you?* And when they said that, all the *guys* said, *No!* They stood right up and answered it.

*Which I think is just really telling of how far we have come, more or less. Twenty-five years ago, the experience might not even have been the same.*

Oh, yeah, it would've been very different.

*Definitely. I think we've made some progress.*

I like to think.

*So I'm sorry if you already explained this, but currently are you involved in anything?*

No. No. I run our business.

*And that's it.*

And mom and wife.

*That's a lot.*

Yeah. No, I don't have any affiliation or anything anymore. Haven't had since '95.

*After the coup and the fall of the Soviet Union, did you notice any—were there any differences in—well, I guess we were already at a moratorium at that point, but any differences at the NTS [Nevada Test Site] before or after that or even within the program?*

Just the battle between the testers and the restorers. Like two different worlds, two different entities battling over the same piece of ground to do things or, [00:35:00] you know, to do things a certain way. As soon as I came out here, I guess, I was realizing that, you know, I had been—before I came out, I knew that you had to call the NTS manager or whoever was the director out there to get permission to come on and do something. And somehow I learned that. Not that I ever had to *do* it, but I knew that was the protocol. *Everything* had to go through NTSO [Nevada Test Site Office] in order to do anything. Well, when I came in in the environmental side, I started seeing how these people were doing, like, well, didn't you go through NTSO to get approval? And then they'd go, No, I just got— And I'm thinking, that's just procedure— And so I, without even knowing anything, there was that kind of split, so they had a lot of that issue that had to be worked out of, what's the new protocol now that there's *other* things besides testing or testing-related stuff going on out there? And I think that can be attributed to empire building. The environmental side wanted to be their own empire instead of just using the structure and infrastructure that was there and just following the rules.

*Right. As in any, I guess, hierarchy.*

So I would say that's where I saw a change, is they had to start—*both* sides had to adjust to the new way, the new world, instead of fighting it.

*Right. Which, everybody's pretty stuck in their ways.*

Yeah. And that was the frustration I had with trying to convince headquarters back at DOE on the environmental side. [They should] use the test site. Even if it's a project that somebody else is working on, if they need a place to do it, and they just—everyone wanted to do it and, you know, "it's not in my back yard. I don't want to—" And that was frustrating for me, to see that here's a national resource and it's not being used.

*So it sounds like both sides were fighting it. DOE was saying, we don't want you doing that.*

Not recognizing that then they would get income because they would have to. And I think that was just all personality at *all* levels, even up at the headquarters level right on down.

*And I wonder why. Do you think any of that had to do with jus—the test site has been sort of this—*

Closed.

*Very closed, very protected,—to the rest of the population, save for just a very small portion of it; it's a very nebulous concept. I mean, a thing that exists out in the middle of the desert, but it's a very closed world, and I'm guessing that that played a role in this.*

I'm sure it did, and for the people that worked at the test site, that's what it was for so many years and so why would we—you know, they had to break out of that mentality, and then the same for the people that—well, that was just a test site. Why would we want to—?

I don't think they really understood that there was a resource there to use. Because it *was* testing, but all they could think of was testing bombs.

*Well, and I mean I think that's just the way the test site has promoted itself, with a lack of flow of information other than—that's all people know about it.*

Until it became the Environmental Research Park.

*But even then, you know, this test site still has this enormous reputation—*

Well, I guess I do have another perspective that would probably apply, if you're just looking for the whole test site thing. The last project I worked on before I left DOE was the transportation study for bringing the waste to the test site, that comes to the test site, has been coming to the test site for years. And [dealing with] the perspective that the public had of radioactive [materials] and the test site and not understanding and not *wanting* to understand, you know, it's safe, and then tied to the same thing with Yucca Mountain. But I was right in the thick of all the—with the public, trying to *educate* them and how, for whatever reason, they didn't want to be educated. They *had* [00:40:00] this image in their head and they aren't going to change it, right down to [telling them], It's more dangerous for that propane truck or gasoline truck that just drove past you than it is for the truck that just carried the waste from wherever that's going out to the test site for storage.

*So you found the public's perception to be fairly incurious.*

At least the public that would come to the meetings.

*Well, that's always going to be a little bit more of your hard-core people that are educated on it, but a lot of times people from both sides come in with very specific ideas.*

But people who either *know* it's OK and don't care aren't going to take the time to come, but the people who are hard against it—and that's like any issue is going to be that way. The ones who are really upset and against it are going to be the ones that come in screaming, and the other 90 percent that are OK with it—

*Aren't going to say anything. Right.*

Yeah. So that was an interesting perspective because they really thought that it was just a terrible place and it wasn't *safe* and what if the water leaked out? And it was interesting to see how they perceived it. You know, as a technical person, I can look at all the information and say, No, it's OK. And they're taking all the precautions to make sure. And even if it

did, it's going to go this way where there's nothing there, and by the time it does, it's going to be so thin and weeded out. And they just didn't—that mindset—

*Yeah, I guess it's going to be like any issue that's really hot. You're always going to have your people firmly set on either side of it. They don't always listen to the facts.*

No. I'm sure there were things done that shouldn't have been done but we didn't know everything we did forty years ago. But there's the mindset of *some* of the people in the public, the perception that we were doing things on purpose. You know, like, if we had the few that leaked, that was on purpose. And not understanding, No, these people aren't going to do this stuff on purpose. They're not evil people. They're not [saying] "Ooooh, let's throw all this waste over here so that it gets into the water and gets out to Lathrop Wells"

*Sort of a conspiracy theory approach.*

Yeah, and that was a hard thing to try and overcome, too, with the people is, No. Would you do that on purpose? [And they would say] Oh, no.

*Well, and then there's the contingency that says maybe not on purpose but then maybe covered up, or were not as forthcoming with information about some of the dangers or perceived dangers.*

There probably was that, but then you have to ask the question, did they even *know* the danger?

You know, *now* they may, and now they're cleaning up.

*Right, but right then—*

Then they may not have—and they probably thought, and this could be in any site in the DOE complex, we're contained. No one's ever going to come in here and use this, so.... So I mean

the whole mindset on being responsible about it has changed. If they were to do it nowadays, they probably *wouldn't* do some of the things they did forty years ago when they were—

*Like a lot of things that we do or have learned. So I'm just curious, to backtrack a little bit, how did you even become interested? What led you down this route to go into—?*

What I went into?

*Yeah, geology and seismology.*

When I was in college, a friend of mine took a geology class. Actually, my mom had taken a geology class. My mom went to college the whole time I was in school, through high school. She graduated college when I graduated high school. And she had taken geology, and I was real intrigued because I used to go with her to her classes and her labs and stuff. And then when I got to college, one of my best friends took it and I thought, gosh, this sounds like a neat class. And he was raving about the professor. So I took it the next year and I fell in love with it and I said, This is what I'm going to major in. So I switched. I was going to be a math major, and I switched to geology. And I also had an interest in education, so I was taking classes that, depending which way I went, I wouldn't have been behind. I would've still gotten out in four years. So when I was at that turning point of, what do I do? Do I go education and teach earth science or do I continue in geology? The professor in that intro class [00:45:00] gave me some questions to think about, and he basically said, No, you should pursue the geology. You've got good capabilities there and you should— He saw something in me that I couldn't see, and I trusted him, so I decided to major in geology.

And when I graduated, there were no jobs. The oil industry had just flip-flopped, and so the only option was grad school. And so when I went to grad school, I was going to be a structural geologist and do all this neat stuff when I realized, I will not be able to master this. I

have to find something else to focus on for my master's degree or quit, and I'm not a quitter. So I talked to all the different professors and found this one project that sounded really neat, which was looking in the Charleston, South Carolina area for any evidence of movement over time in the leveling elevation data. I looked at data as far back to the 1800s because there was a big earthquake down there in the 1800s. And so I just took all that data and analyzed it and manipulated it to see if there was any evidence to show that you could maybe predict, or if anything had happened because of, the earthquake. So I switched to that and then had to take some other classes so I could have the emphasis in geophysics. And I hated physics in college, and that same [intro Geology] professor said, when you take it applied to geology. You'll like it. And I did. And it's like all of a sudden, it just clicked. Most of it. So that's how I got into the geophysics side of it. [I] still wasn't really doing seismology, except for the fact that it was related to an earthquake. I was looking at it from a totally different aspect.

So when I got out of grad school, I didn't know what I wanted to do. I was sending applications out to different companies but wasn't sure what I wanted to do. A friend of mine needed a ride to California so I said, OK, I'll drive you, and then I was going to continue back by myself, just visiting friends along the way. And I thought well, while I'm out there, I'll drop off my résumé at different places, so I did that. And my professor, my advisor in grad school, said, At least make sure you go to the USGS and see. That's kind of like still the college environment, so a lot of people who get their Ph.D.s want to go because you can continue to do research. And so I went in and talked to the people that were related to my thesis, and they didn't have any openings or any need for anybody, and they said, Well, but let me take you over to this guy. So I went over and he said, Well, what do you know about this? And I said, I don't know, but here's my thesis, if you want to look at my thesis

to see what I'm capable of doing. And so I got this position starting on this earthquake prediction project and I said, Heck, I can't turn down a job offer. If I don't like it, then I can still look elsewhere.

So that's how I got into the true seismology aspect of it. And a lot of the people that I worked with, in addition to monitoring the earthquakes in California and the western region, also were interested in the monitoring of the testing, nuclear testing, with seismology. So I was getting it a little bit by osmosis, just from hearing people talk, not that I was doing the research myself. And then heard about this position that I ended up getting. I said, oh, what the heck. So I applied and ended up getting it. Not that I was really pursuing it. Somebody else was, but he didn't get it.

Then I went back East and worked in the national Geological Survey office for, oh, several months, and then had to decide between staying with them or taking this other position, and went with the other position.

So that's how—it was just kind of a—wasn't my focus, ever, until I actually was doing it. But just kind of fell into it.

*Interesting. And so you were able to do some monitoring of tests out at the test site, I'm assuming?*

Yeah, I had access to the data that was collected by *other* people for it, so I was able to see it, and then the same with the foreign—anything that might've been suspect as a foreign nuclear [00:50:00] test, whether it be Soviet or India or France or wherever. I was involved in looking at that data and helping people figure out what was going on. And better ways to do it. [That is] a whole other story that's not even related to the test site, about this [seismology] empire. "If I didn't think of it, then I'm not going to use it."

*Right. But I do think that that is related. I mean it's not related to the actual test site, but the test site is part of a larger story, I think.*

Yeah—trying to get people to use, or at least evaluate systems developed by another government agency and then use it themselves. They just didn't want—

*And what does that entail?*

What do you mean?

*You look at the data—*

At the seismic data?

*Right. And how do you tell who's doing what?*

Earthquakes. There's a background signal that you'll see on the seismogram; it will just be doing its thing. Earthquakes will have a certain buildup before you see the main earthquake, and then the die-off. And a nuclear explosion has a different look to it. And sometimes it's hard to discriminate what it is. So if you know the background seismicity and you know that this place doesn't get anything big or hasn't periodically, then you can see the anomaly.

*Right. So you can tell from that which area may be doing—who's doing what.*

Right.

*OK. And then once that is determined, we take that information and do what?*

Then the government takes the information and decides whether they need to—it's called *demarche*, if someone did something they weren't supposed to do [under the Nuclear Testing treaties]. And then the problem with the *seismic* monitoring is deciding—because [of] the threshold—the testing treaties limit the size, or *limited* the size, that you could test to 150 kilotons. The seismic has the problem of there's so much—it's hard to get a true, exact magnitude of something because you need to know the geology and you need to know the path

that these waves go through. You need to understand the geology it's going through to figure out whether the signal's been attenuated or made bigger or whatever. I was trying to get people in one community [to use] stuff that been developed in another community, because they were doing it to try and predict the earthquakes in California. So they had a *lot* of good programs for how to tell what was going on while this wave is traveling down through the earth, coming back up the other side to the equipment, to the seismometers. Where was I going with that?

*What is done with the data after we receive it.*

Oh, so there has to be the error— to come up with the seismic magnitude, and then there's an error on it, you know, plus or minus whatever, and then you give it to the policy people and say, This is what we've come up with. This is what we think the magnitude was. This is what we think the tonnage was of the test. Then they take that and decide whether to send a formal *demarche* saying, We've got evidence, *etc.*

*And so did you find any of that going on?*

I never did. I don't think I ever had it where they did a *demarche* on that. They did *demarches* on other silly things but never on that. And that was the whole thing with the testing treaties, is that they then allowed an *invasive* way to measure, which was much better than the seismic. That's all you had [until the treaties].

*I guess I'm just curious what your personal thoughts were when you were out there monitoring things. I don't know, did you ever think about, Wow, these are nuclear explosions. Or not.*

Like did I ever suspect something, you mean, or did I—?

*Well, I think working out at the test site—or you might not have actually had the same*

**[00:55:00]** *experiences. For example, I talked to a miner whose job it was to dig these huge tunnels. And he's a miner. He's been a miner his whole life. That's what he did. And then he just*

*came to this revelation one day that yeah, he's a miner and he's digging out this tunnel, but he's digging this tunnel because they're going to put this enormous weapon in it and explode it. And that really had a profound impact when he realized what that was.*

I guess part of what I had a problem with was on some of it, part of me felt like we were snooping. And, you know, from the treaty aspect, that was OK. But then I sometimes questioned, why should they care about anything else? So I had that realization of, what are people using this information for? Other than to tell whether they exceeded this limit. I guess the only other of those, "Wow, what an impact!" is what we did was so momentous. I mean when I started realizing—because I didn't know about testing until I got involved, and then when I started realizing what was going on, just not so much that, wow, this is a nuclear test, but just, wow, this is huge! Just the breakthrough that we were letting them on our *site*, we were going into *their* site. I mean that was, you know, Reagan just—when he said, *Make it happen*, that was a *big* thing to make happen. And I'd slowly learned more of that, the more I was involved with it, really, what a big thing. And then after I met Chay and started hearing *his* stories—

*You realized that it was pretty huge.*

Yeah. Some of these people at the test site were, like, *The Russians are coming*, like they couldn't handle it. They just couldn't believe that that was going to happen. Some people had a problem with it.

*But did you have any thoughts about it at the time, or it was it more like you were there doing your job?*

I didn't know. I mean I realized it was important, but because I wasn't living and breathing the test site, I didn't really recognize what an impact it had on some people.

*Right. What about in hindsight now, just the magnitude of that?*

Yeah. I mean now when I look at Chay's pictures or watch the videotapes and see where they raised the Soviet flag and played the Soviet national anthem, I'm thinking, wow! I mean it still gives me the goose bumps because who would've ever thought the "Evil Empire's" flag would be flying over an American highly secure, secret place? So now I mean I *really* understand it now and I didn't so much when I was [beginning to] get involved in it.

*Yeah. I suppose when you're involved in it, it's a little bit more difficult to see around it.*

Because I came at it from a different way. I wasn't involved in it when it was secret.

*It was already public at this point?*

Or getting public. I mean the yields and stuff were all still secret. But the ice had already been broken, so I never was involved in it before that.

*Did you ever meet Reagan?*

No. No. Wish I had. Wish I had, but no, never met any of the presidents. My highest person that I've met, who is now higher than he was then—oh, kind of higher—was [Colin] Powell.

*Really? I was going to ask you that, actually.*

He's awesome. He's my hero. It was during the ratification hearings with the Senate. I was in with the people I was supporting. We were scheduled to give our testimony, and the Joint Chiefs was giving testimony either right before us or right after us, I can't remember. And when he walked in the room, you just felt his presence. And then he sat down—this has nothing to do with this, but I was so impressed by it. You prepare briefing books for the person who's giving the testimony, because the bigwigs give the testimony and all the peons sit next to them. So you have briefing books, you think of every question they [senators] could possibly ask, and then you write the [01:00:00] answers for them. Every other [cabinet member], including my own, the one

I prepared for, sat there and has to find the page with the question and figure out the answer, and then if they still couldn't quite answer it right they'd defer.

Powell sat down. He had his book open. They gave him the first question. He closed the book and he proceeded to answer every question without the book open. I mean—he is a well—he's intelligent and he's got to be well briefed, but to be briefed and remember it, and he's got so many other things as the chief of the Joint Chiefs, he's got *tons* of issues he's having to deal with, not just this. Because we kind of got shoved to the side all the time. We weren't given all the importance of START or INF or any of those treaties. It was like we were just in our own little world. But he just really impressed me.

*Wow. That's pretty huge. He's a major figure, particularly right now.*

But the people that *I* worked with who were *his* underlings, they introduced me to him and I was just like—

*Star-struck.*

Yeah, I was. And I had moments when I was doing it. You were asking like when you're off and you go, wow. I was at my desk one night, working late, probably working on the briefing book, and I got a phone call from, not the head of the National Security Council but the next person down, that was in charge of all the treaty issues, and he said, I just need an honest answer to this question, and I know you're the one who will give it to me. And I don't know how he got the line on *my* desk and I'm thinking, OK, what's the question? And it was a very easy question to answer. And he said, So you don't think that this needs to be in the protocols. It was a decision paper thing that was going in. And I said, You know, honestly, from a technical standpoint, it's not going to make a difference. We either need to have ten of them or this amount's fine. The information isn't going to make a difference. And when I hung up from him, I thought wow, I'm

involved in a really big thing here. And that was the realization to me, that I was doing something important and so I was like, he called *me*! He didn't call all these people above me and then have the question come back down to me.

*So that must've made you feel pretty amazing.*

Oh, it did, and that's when I realized what an important thing I was involved in.

*Yeah. Historically, it's huge.*

Yeah. I will never forget that evening. [01:03:32] End of Track 2, Disk 1.

[00:00:00] Begin Track 3, Disk 1.

I wish I could go back ten years before I started in it and had been involved in the testing program. I think it would've been a neat program to actually have been able to be out here and *doing* whatever. I feel like I missed out on something.

*Yeah. That was right at the very end. What would you have liked to have done?*

The geologic part of it. Use that part. And the seismology with it. Because all the disciplines were out there, involved, and I would've liked to have been really doing it because you just hear so much. It was a family and they're all working together. So I feel sad that I wasn't able to do it. I kind of live through it, what's the word, vicariously, through stories.

*Right. You came in at the end of a pretty big era, it seems like.*

And then there were times when I'd have to call out to the test site to just get an answer for a question or something, and I'd talk to Jim Magruder, I would talk to Chuck McWilliam, and I had no clue who I was talking to until I got involved and started to think wow, I'm dealing with bigwigs or high-up people, especially Jim Magruder, and I didn't think anything of calling him and asking him a question. And he didn't think anything about answering me or referring me to

the right person. It was just a real down-to-earth group. So when I finally started meeting the people, I thought hmm, these are all the people that you hear the names of.

*That's pretty amazing. Truly amazing.*

**[00:02:08]** End Track 3, Disk 1.

[End of interview]