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

Interview with Nick Aquilina

June 25, 2004
Las Vegas, Nevada

Interview Conducted By
Joan Leavitt

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Joan Leavitt*: OK. The last time that I got to interview you, and also as I got to talk with Troy Wade, I was really impressed with the way you have a character of being a "can-do" man, one who takes a job or a task that might be overwhelming to some. Just for example, when Troy Wade told you that you needed to go over to the Soviet Union [USSR] and drill a hole, and you needed to take all of the drilling equipment and the drillers and all of the supplies and everything, and how you did it. You have a positive leadership, I like to call it a can-do type of personality. And what I really want to do with this interview is do some background, your growing-up, how you got some of those values, and the things that make you the person that you are, because I think that's a part of the test site story. So that's really what I'm hoping to accomplish with this interview here. Could we just start with where you were born?*

Nick Aquilina: I was born in Scranton, Pennsylvania, in northeast Pennsylvania, in 1937.

What day?

June 10. So I just had my sixty-seventh birthday.

Oh, OK. Congratulations.

And the early part of my life, I lived in that area, in a small town called Pittston, Pennsylvania, on the Susquehanna River between Scranton and Wilkes-Barre. [I] was raised in a small town, predominantly Italian, Polish, Irish coal miners.

Was your father a coal miner?

Dad was a coal miner, was a big baseball fan, [and] a big baseball player, so we were raised in an environment of work hard in the coal mines during the week and play baseball on the weekends . I have two brothers. One is a professor now at Columbia University where he runs their language program for foreign business people, and my other brother was a doctor who's now retired.

Well, what about your mother?

My mother was just a hard-working woman, raised in that area, lived her whole life in that area, was a beautician. When the kids came about, she retired and did all the neighbors' hair for years and years. She was well-known in the area for doing all her neighbors' hair.

Now, do you know the immigration history of your parents? You've said Italian—

Yes, but they were born here. My grandparents all came from Europe.

OK. So do you know about what part of the century?

Yes, they came over right around 1910, 1911.

OK, did they come to Pennsylvania too and pretty much settle there?

Came to Pennsylvania because of, again, the coal mining background. Up in the hills of Sicily, they mined sulfur, so when a lot of the people came over here during that period of time, must've been a terrible period of time in southern Europe when you consider how many people emigrated and came into the United States with nothing. I mean they left their homelands, they didn't speak the language, and they came to America. A lot of them settled in New York City, but a lot of them who had a coal mining background went to where their relatives were and they went up into northeast Pennsylvania and became miners.

Now it sounded like you have extensive family. Did your grandparents have a number of children?

My grandmother and grandfather had seven, and his brother, my great-uncle, had eleven, and they all lived in the same block, so you had eighteen kids who then start having kids.

Yes, they formed their own kind of community again.

And we all lived right in the same area together, so it was a nice way of being raised.

Now you say your father's family settled around Pennsylvania. Did your mother's family also?

Yes, they also did, and they were also in the coal mining business.

Oh, OK.

Yes, in that part of the world back in the early part of the 1900s, you were either a coal miner or you didn't work, I guess.

Now I was just talking with a lady yesterday, Helen Draper, and she made the comment, and maybe you can support this or not, that coal mining with her family made her not experience the Depression. Was that true for you, or did you feel the Depression with coal mining?

No, I didn't feel the Depression like you see it in movies or on TV.

John Steinbeck.

Right, because my dad, being a ball player, usually had a job in the mines or on the railroad. They had company teams back in those days and you didn't have what you have today, minor leagues, very much. A lot of the company teams were the pride of the town, if you see what I mean, and so my dad was a good ball player and as a result usually had a job, more because of his ball playing ability than anything else. And my mother being a beautician always was able to have some kind of a job as a beautician. So I was raised in the late 1930s, kind of the end of the Depression, close to the start of the Second World War, and I never personally experienced the Depression. But on the other hand, like many people say, we didn't know we were poor, you know. We ate good and we lived fine.

And you probably had the same standard of living as people around you.

Exactly. Everybody had the same standard of living.

Now your dad as a coal miner, he wasn't a Loretta Lynn coal miner either, I'm kind of getting.

Oh no, he was. After he stopped playing ball, he went down into the mines and worked down deep in the mines. In fact I just chatted with him recently at his ninety-first birthday. We were chatting about his experiences in the mines, of working in shafts that were thirty-six inch high, which meant you mined on your knees. And we always knew as kids somebody getting hurt or killed in the coal mines. We would hear the whistle blow and then we knew something—because shafts were all around us. Out West, the only place I know that's similar is Butte, Montana. You go to Butte, Montana, you notice that there's big A-frames right in neighborhoods. There'll be one across the street from your house. Well, that's how we were in Pennsylvania. We had mine shafts in our neighborhoods, and we had *huge* piles of culm, waste coal, all over the place, and you just grew up in that environment. But yes, my dad was a Loretta Lynn-type coal miner. I was a coal miner's son rather than a coal miner's daughter.

But he's lived a long life and the coal dust didn't seem to—

Well, he has black lung.

He does have it.

Not serious, obviously, but he has black lung. He gets a minor amount of pay for that. But he's ninety-one years old and seems to be living fine.

That's good. Well, tell me about maybe going to school, the kinds of schools you went to.

Well, good or bad when you're a kid, the school was about twenty feet from my house, first to sixth grade. I couldn't play hooky because the teacher would stick her head out the window and talk to my mom every day, because we were right there on the side of the school.

How large a school was it?

Not very large because it was a small town, ten to fifteen thousand people, growing up, and this was one of the grade schools. So I went to six grades there and then I went to the high school like most kids do. Again, it was very nice being in a small town back in those days. I just went back to my fiftieth high school reunion and it was like I've known those people during those fifty years. You just have that kind of relationship. Knew everybody, had a good time with **[00:10:00]** them all, and we reminisced: the football games, the basketball games, *et cetera*. So it was a nice town to be raised in. As you said earlier, we didn't know we were poor because everybody had the same standard of living back there. My kids don't believe me when I tell them, I never knew anyone who took any drug whatsoever, because it was a tough, coal mining town. And my kids always say, `Well, there must've been drugs around,` but I grew up in the pool rooms and I never knew anyone who took drugs. So it was just a good town to be raised in, as I look back now. A lot of fun. Played ball a lot. Hung around the pool rooms during the wintertime. And just a good town.

So you graduated in 1954, is that right?

Nineteen fifty-four.

Now did you have any classes that you especially enjoyed that you took, or teachers that were memorable to you?

I always liked math, so obviously my math classes I enjoyed. I enjoyed geography, history, those kind of classes. But high school was just a wonderful experience to me and I kind of enjoyed it all.

Were you active in sports or—?

I was very active in sports, played a lot of baseball.

Of course.

In sports that I wasn't good enough to play in, I would be a trainer or a manager on that team, like on the basketball team, *et cetera*. But I grew up just loving sports. Baseball, basketball, and football, you know, that's what we did as kids. I still do it to this day.

Well, you said that's how you and Freda [Aquilina] had your first date.

Freda and I met on a bus trip from the Nevada Test Site down to Dodger Stadium on May 11, 1963. We used to run buses three, four, five times a year from the test site on weekends to go see ball games. And Freda happened to get on that bus trip and *I* got on that bus trip and that's how we met. And four months later we were married. It was an interesting way to meet.

Now what year was that?

It was 1963.

OK, so that was nine years after high school graduation then.

That's right, and I'd been in the Army a couple years. I was drafted in the Army in 1960, got out in 1962, started working at the test site in 1962, met Freda in 1963, and we got married. People always say, `Boy, you remember the date you met your wife, May 11, 1963.` Well, the reason was that day Sandy Koufax, the pitcher for the Dodgers, pitched a no-hitter, and you can't forget the day you saw a no-hitter.

Those are the memorable things.

They really were. And we lived at the test site. We got married and we lived out in a trailer at the test site, which was kind of fun. Again, we didn't know at the time how much fun it was, but looking back, it was really an enjoyable time. You could live at the test site if both spouses worked at the site. They had trailers or dormitories, and we lived in a marriage trailer and kind of enjoyed it.

Now was this at Indian Springs?

No, right in Mercury.

Mercury itself.

Right in Mercury itself, behind the gate, so it was a very protected community, but we had softball games every night, we had a rec hall where we would have dances on weekends. There was always a card game going on, or ping pong games, or whatever, so it was kind of a fun place to live. And in that period of time we were working long hours. A lot of us were working six nines, six days a week, nine hours a day, and so a lot of people lived right there at the site. And there was a lot of young people. By "young," in their twenties, I mean. So it was kind of a fun place to be back then.

Well, let's kind of cover what you did between 1954 and 1962.

Well, in 1954 I thought my goal in life was to own my own restaurant. I always liked being around resorts and restaurants. During the latter part of high school and then through college, I worked in resorts in the Pocono Mountains in eastern Pennsylvania and I enjoyed that kind of business, and my goal was to stay in that business. So when I graduated from high school, my dad required in my house that I went to college, or else I would've went straight into the restaurant business then. So I went to a local school, Kings College in Wilkes-Barre, **[00:15:00]** Pennsylvania, for four years. During the summers I would work in the Pocono Mountains in the resort areas up there. When I graduated from Kings College in 1958, with a degree in sociology by the way, only because I was just trying to get through college and get on as fast as possible into the restaurant business, I applied to Cornell University, which back in those days was the restaurant-hotel management school of the country, similar to [what] UNLV [University of Nevada, Las Vegas] is today, but back in those days Cornell was. And I was

accepted into Cornell, but when I got the bill Cornell was way above what I could afford at the time.

Do you remember how much it was?

No, I don't but I knew it was more than I could afford at the time, so I said, `Well, I'll go work for a couple years in the business.` So I would go down to Boca Raton, Florida, which today is a spectacular place but back then had nothing but the Boca Raton Hotel and Club, which was a fascinating, wonderful resort. Sammy Snead, the famous golfer, was our house pro. Freddy Martin, the famous band, was our house band. So it was a special kind of a resort. I would work there in the winter and then I'd go back up north and work in the summertime, with my intent being to go to Cornell University.

In 1960 I was at the Princeton Inn in Princeton, New Jersey, on the campus of Princeton [University] during football season—which was wonderful, from the Ivy League schools coming in—when Uncle Sam sent me my greetings. Which shocked me, because you may recall in 1960 nothing was going on anywhere. I mean it was one of those very few periods of time where there was world peace, if you will. But I got my greetings and I was drafted, so I spent the next two years in the military. After basic training in South Carolina at Fort Jackson, I went to San Antonio, Texas, at Brooks Army Medical Center, the hospital there, and lo and behold, I ended up in the psychiatric ward as the social worker for the female ward and spent my two years in a closed hospital with female patients, which was quite an experience because the first week or two I was deathly afraid. But after that I got to enjoy that job and it was a very rewarding kind of a job to have for an enlisted man in the Army.

Nineteen sixty-two, the week before the Cuban crisis where Kennedy and Khrushchev had their famous almost-nuclear war between each of our countries, I got out of the service a week before that, October of 1962.

Good time to get out.

Well, I thought I was being called back in because I remember I flew up to Newark from San Antonio and my dad picked me up and we were driving up to Pennsylvania and we turned on the radio and they announced the Cuban blockade, where we blockaded anything from getting into Cuba. I was sure that I'd be called back into the service. It's only over the last few years that we're starting to realize how close we came to a nuclear confrontation.

Oh, that Thomas Reed book was incredible [At the Abyss: An Insider's History of the Cold War, *New York: Ballantine, 2004]*.

Thomas Reed talks about that a great deal. So that was my little history then. But in any case I was not called back in and as you know that thing worked itself out without any major problems occurring.

Well, then I had to find work. Again, I thought I'd still go into the hotel business, restaurant business, with the intent of some day owning my own restaurant. So I headed west, thought I'd find work out here, just to see how southern California was. I thought that's where I was going. And *en route* I picked up two of my old Army buddies to come with me, and we were in Kingman. There's a sign in Kingman, Arizona on the old Route 66 that says, "Las Vegas, 30 minutes further." Well, three young guys out of the Army, we thought we'd stop in Las Vegas, so we turned off on 93, off 66, and came into Las Vegas in November of 1962. There were the bright lights of Las Vegas, so we kind of liked that. But unfortunately in the next three weeks, two weeks, we went flat broke, the three of us—

Was that from gambling?

[00:20:00] Thinking we were going to break the town with our few dollars that we had. We didn't have very much. So we had to look for work. And I recall we knew some people from my home town who lived here and they said there was a company called Reynolds Electric and Engineering [REECo] who were hiring people because of the resumption of testing after the three-year moratorium with the Soviet Union. And so we went down to the Reynolds Electric and Engineering facilities on Highland and walked in there, not having any idea what a test site was and who Reynolds was and who the Atomic Energy Commission [AEC] was, for that matter. When they found the three of us had college degrees and just got out of the Army, they hired us immediately, and so we went to work for Reynolds.

All three of you.

All three of us.

Now who were they?

A guy named Rick Sullivan from Minnesota and a guy named Gary Bennett from Des Moines, Iowa.

Did they both stay and make it their career like you did?

No, they did not. Rick stayed a year or so and then he went back to Minnesota and got married and lived the rest of his life in the Minnesota area. I think he's still there. And Gary spent about two years out here. In fact, Gary was in our wedding party later that year, the next year, and Gary then went back to Des Moines and went to work for 3M Company. I assume he's still with them. But the three of us were Army buddies and came out here. We roomed together in the Army.

Well, did your meeting and marrying Freda pretty much make it easier to set down roots then in REECo itself or the test site?

Well, I never even considered it at the time, you know, you just go through life and things happen. I enjoyed working at the site. We were making relatively good money for the time. I think back now of what we were making. My first job at the test site, we were making I think it was $1.75 an hour, and we were getting $7.50 a day *per diem*, which sounded awful nice, plus we were living at the test site.

Yes, probably better than Army wages.

That's right. Living at the test site, seventy-five cents a night for a trailer, and the cafeteria had wonderful food at very reasonable prices, so we just thought life was wonderful. And when Freda and I got married, we just continued that for a while, and then we moved into town eventually, moved into an apartment out on Tonopah Highway. I still call it Tonopah Highway—I guess it's Rancho now—which seemed to be *way* out at the time. When I go by there now, it seems to be in the middle of town now but it was right across the street from the North Las Vegas airport. It was a small apartment complex there, owned by Bob Kost who worked at the test site, and all test site people lived there because it was a nice, the last kind of stop out to the test site, so you got on the bus right there and went out to the site. So that was a good place to live, for the test site people.

In any case, you didn't think about `What's my future?` at the time. You just thought this was a wonderful job. The site was so busy in a nice way back in those days. Things were happening. Testing really resumed after the moratorium. Did an awful lot of tests out at the site. Being a REECo employee at the time, we didn't realize all the significance of that. We just thought this is the way you did things.

Somebody wants the job done and so that's what you would do. Now you were more in the office.

I was in the administrative side of the house. I eventually was the budget supervisor in REECo, but I was always in the management-budget side of the house, planning and budgeting.

Kind of the accounting area?

Related to accounting, but Freda was in the accounting side, but we were more in the planning and budgeting side of the house. But back in those days, I remember a key time was in 1966. We had one of the very few major strikes at the site by the construction workers. The site at that time was trying to develop what became known as a site stabilization agreement with the unions. And the unions went on strike right when a test had been done. I recall that they wanted to do post-shot drilling right after the shot. Usually after an event, the laboratories like to go back in and recover some of the material from under the ground. It's called post-shot drilling. And with **[00:25:00]** the construction workers and the drillers on strike, a lot of us administrative people were asked to go out and help, and a lot of supervisors did the actual recovery. Well, we didn't know what we were doing, but I went out and worked a thirty-six-hour shift at the mud plant, mixing mud and getting water for the mud.

Thirty-six hours straight?

Straight we worked, because we had to get that post-shot drilling done. Probably took some naps and stuff. But I remember we were out there, a number of us administrative people. Here we are driving water trucks that we never drove, and if you ever drove a water truck with that water sloshing back and forth as you went down the road, and then trying to back it up to the fill stand, it's quite an experience, especially when you're doing it at two, three o'clock in the morning and you don't know what you're doing. But we got through that and we did the actual post-shot drilling activities and mixed mud all night. Mud is what you use during the drilling process to **[00:26:06]** recoup the cuttings. So that was kind of an exciting, interesting time for us

administrative people, but it also got us in closer, if you will, with the lab people, who appreciated what we were doing. We became very good friends with a number of the lab directors, the test directors, Charlie Williams in particular, who was the test director for that particular shot. And later Charlie came to Nevada to become the deputy manager of the Nevada Operations Office [NVOO]. So you never know when friends are to be developed and what happens to that friendship after. I then went to Idaho with Charlie, for example. When he became the manager of the Idaho Operations Office [IDOO], I went up there to Idaho with him. That all started during that strike period of 1966.

You were just one of those that did the job that needs to be done.

Just went out and did whatever we were asked to do. You know, during the culinary strike we went over and washed dishes in the cafeterias, things like that, which in retrospect was kind of a nice way to make friendships out there and just get involved with all the activities.

No grumbling, no resisting.

No grumbling. You just went and did your job. So it was a great period of time, the 1960s at the test site.

I'd kind of like to go back just a little bit, because it seems like the significance of the twenty-first century has to be understood with the attitudes that came out of the 1950s. Can you tell me what your attitude was, what the general attitude of the country was, for example, towards the Soviet Union during the early 1950s while you were in high school.

Well, I think it all started in 1945, the postwar. You know, there was a different feeling, I think, in our country after the Second World War. We had beat down this Nazi terrorism. We're first starting to hear about things like Auschwitz and what they had done to the Jewish population in eastern Europe during that period of time, and we started hearing all those things, and as young

people weren't sure if you understood all that. You start hearing numbers, five, six, seven million people being killed by Hitler and his people, and I remember just shaking my head, not understanding how that could possibly occur. You know, when you live in a town of ten thousand people and somebody talks about killing seven *million* people, it's hard to relate those kind of—

Did it feel like that had to be an exaggeration?

Not an exaggeration. It felt like it had to be a frightening thing and back in those days you didn't have television, so you went to the movies and you would see news as part of your movie. Movietone News would be shown, and I could always remember seeing Hitler and seeing the German Nazi soldiers, the way they marched down the street. And so it was a relief. We thought it was the end of all world wars. The Second World War was going to be—of course the First World War they thought too was the end of all world wars, but surely we thought that after Hiroshima and Nagasaki and the Japanese surrender, that this was the end of all wars. But then we started hearing about this guy named Joe Stalin, and then we started seeing—in the movies, Movietone News—we started seeing this thing called a mushroom cloud. And you started seeing those kind of things, and as you've all heard, people of your age, we **[00:30:00]** started doing things in school about jumping under your desk and hiding your eyes from the blinding lights, and you started seeing descriptions of how to build a facility in your back yard and underground.

Was that the early 1950s? Late 1940s?

Late 1940s, early 1950s, right after that first Russian test, which I'm not sure we understood the significance back then, other than it was quite newsworthy. I was twelve years old when the Soviet's first test in 1949. But we started getting the significance. But the more frightening thing

was we went from Hitler to Stalin, and Stalin became that fearful-looking thing, if you recall pictures of him. So that period of time was very frightening.

But then something came to divert your attention from all that, and that was the Korean War. I just missed the age for being drafted into that Korean War, because I was like fifteen, sixteen, but a lot of my friends that I played ball with were seventeen, eighteen. A lot of them got drafted and went to Korea. So Korea became the dominant factor as far as world fears and wars to us then.

And the Soviet Union was part of that conflict, I mean as far as what you understood then?

Yes, we understood that—in fact I recall thinking, Well, this may be the next step to another world war, with the Soviet Union. And of course the fear then was the use of the nuclear weapons. You wondered about these things and you would *read* a lot about these things. And there was an awful lot of Civil Defense activities back in those days.

And it was to protect you against the Soviet Union, wasn't it?

That's right. That's right.

OK. What did you see as far as the attitude towards Communism before the McCarthy era?

The word "Communist" was the same as "bad guy" to me as a kid.

Early, as a kid?

Oh, always. I mean—

Because I had understood that the United Mine Workers before McCarthy kind of were pushing the Communist Party.

Well, if they were, I didn't know that.

Not in your area.

Not in my area. Communism was a very scary thing to us. We never considered Communism as a way of life. We considered Communists as the enemy.

One more enemy after Nazi Germany.

That's right. It was the same as the Nazis. In fact it was worse because Stalin, we figured, had the nuclear weapon. So no, Communism was a very frightening thing to us as a child.

Did it seem reasonable to you that the Soviet Union had gone into eastern Europe? I mean was that a reasonable compensation for what the Soviets had sacrificed in World War II?

I don't recall thinking of that at the time. I don't recall *knowing* of that detail in a detailed sense. I recall TV shows like *I Was a Communist for the FBI* or you know there was a number of those radio shows at the time of the FBI [Federal Bureau of Investigation] *versus* Communism in our country. We would hear a lot about Joe Stalin. So it was those kind of things. I didn't think of eastern Europe *versus* western Europe or any of those.

And did you think in terms of Communism potentially taking over the capitalistic world?

Oh, no question about it.

Oh, you did? That was one of your solid premises.

Oh yes, right. Oh yes. That they wanted to overcome the United States and we would all become Communists, kind of is what we—and of course the McCarthy hearings started, along with the Kefauver hearings, at the time. The Kefauver hearings were very interesting to us because they related more to crime in the United States, whereas McCarthyism was, you know, toward the Communist threat. And in *our* area there was a lot of *names* in the Kefauver hearings because there was a lot of gambling and stuff and that. So we became very interested as young kids in what was happening, and I recall sitting around listening to the radio of some of the Kefauver hearings because we'd want to hear the names of people we knew in our area. But then at the

same time you would start hearing about Joe McCarthy and the McCarthy hearings. And back in those early days, McCarthy was not considered the ogre that he's considered today. I mean he **[00:35:00]** was considered as the person, along with Nixon at the time, who was fighting Communism. He was almost a hero in some ways, of how he attacked the Communists in Hollywood, the Communists here, the Communists there. And so it was an interesting thing, that when you *live* through an era *versus* when you look back on it from a historical point of view. Today everybody has nothing to say but bad for the most part about that era, but when you were *living* through that era on a day-to-day basis, you looked at it from a different point of view. McCarthy was not the ogre that we see him as today.

So that was an interesting period of time. But again, Joan, when you did not have twenty-four-hour TV and news being thrown at you twenty-four hours a day—I remember our news on television, when we finally got a television set in 1954, my dad got a little twelve-inch screen in 1954. We had fifteen-minute news at quarter to eight at night, and John Cameron Swazy was the news commentator, and you got network news for fifteen minutes. We wanted to get over with that so we could watch our eight o'clock show. We only had the one station so you only watched *the* show that was on that particular channel. But since you only had that fifteen minutes of news, since you didn't have other *news* stations, you didn't have talk radio, *et cetera*, worldwide news was a different thing than it is today. I mean today we know instantaneously what happens all around the world. Back then, we didn't know and maybe didn't care. You know, we cared about Joe Stalin. We cared about Tojo during the Second World War. But we really didn't care. We were more concerned about, is anyone ever going to beat the Yankees? We hated the Yankees in my area. Or is Philadelphia ever going to have a baseball team? You know, those *kind* of things.

What was our high school football team going to do this weekend? And it wasn't a constant attention to worldwide affairs like it is today.

Yes. Well, there also seems to be a different attitude towards the government at that time, and probably it also has to do partly with the immediacy of media news. You didn't have scandals that were constantly being reported. I mean Dina Titus said that the 1950s was reminiscent of a simpler time. You know, I've been thinking about that, and there was a definite difference in the way people viewed the government. They didn't tend to view the government with suspicion or as the enemy. They were not particularly skeptical about things that would come from a governmental source as far as national defense. Could you make a comment on that?

No, I think you're just right. But again I think it has a lot to do with the availability of the media.

And the way they treated the government. The media in those days treated the government with a certain amount of moral authority, like the government does things for the right reasons.

Yes, no question about it. I mean you talked about scandals. Well apparently, for example, FDR [Franklin Delano Roosevelt] had a lady friend all of his adult life. That was *never* reported. We didn't know about that till *years*—or I didn't know about that till *years* after he passed away. J. Edgar Hoover was doing things with the FBI that we didn't know. He represented *discipline* to us.

And morality.

And morality, even though it turns out that maybe he wasn't a very moral person. But you just didn't know those things and they weren't reported to you, and then you didn't have the availability anyway. You read your local newspaper, you saw that fifteen minutes of news. And as you said, the news was presented in a non-confrontational way as far as the government. But

we never had a C-SPAN-type thing, so you didn't go see what's happening every moment, of every activity in Congress.

Well, did you ever see that documentary called Atomic Café*? Have you ever seen that?*

No, I did not.

[00:40:00] *Oh, OK. Because it portrays the 1950s really in a very simplistic, naïve sort of a way.*

And it probably was. Although I always say I'm sure glad I was raised in the 1950s. Life was simpler in the 1950s. You know, historians could always put a twist on it, and every once in a while I read about how naïve we were in the 1950s and how we allowed J. Edgar Hoover to get away with whatever he was getting away [with], and how McCarthy became what McCarthy became, but as a person *living* through that period of time, it was a wonderful period of time to me.

You knew who the enemy was.

We knew who the enemy was in an international way, and on a *local* way you weren't afraid to walk the streets at night. You weren't afraid to park your car somewhere. You weren't afraid of doing all those things. Drugs were not an issue back in those days.

There seems to have been a kind of a confidence that we were the good guys.

I think so. I think so.

And there was a national unity and pride, I think.

Probably. It's easy to oversimplify things, and I'm sure life in northeast Pennsylvania was different than life was in southern California, but we didn't know that. I mean I think back: the one thing that almost is humorous to me is in the mid-1950s we used to get one football game a week on television [on] our one station, but I remember occasionally we would get a game from California, from Los Angeles, and surely that must've been heaven. I mean here we would be in

the snow and the cold and the dirt of the coal mine area, and we would see this wonderful thing called Los Angeles, with the sun always shining, and people looked differently to us. It was funny how our perspective of the West Coast was through those football games, and that surely this must be heaven out here. The only time we heard of Arizona was when people who got certain lung illnesses, their doctor would say, `Move to the dryness of the desert.` And we thought, `Gee, that must be a wonderful place out there.` So life was so different back then, and so it's easy to oversimplify, Well, how did the United States feel about it? I think it was more localized kind of things, that every little locale had their own little world that they lived in.

Yes. Well, describe the kind of living arrangements, the kind of house you grew up in.

I grew up in a double house that probably was at that time a hundred years old.

A double house? What does that mean?

By double house, meaning two family. I guess you call them duplexes today. We called them double houses. We just looked at the deed. My dad paid $3,200 for it. His mother and then brother lived on the other side, and his brother lives there to this day. Seventy years later, they live in the same house. It was a typical eastern house, big, as far as tall, but very small rooms. When I go back now, they seem very small.

Did you have running water? Electricity? Did you have those kinds of—?

Oh yes. Oh yes. But my grandmother did not. My grandmother had the outdoor commode that in the middle of the winter you have to go outside.

Now you said you had- was it two brothers?

I have two brothers.

Two brothers. So there were three sons?

Three sons.

Did you have any sisters?

No.

So three sons and a mother and father in how many bedrooms?

Three bedrooms.

Three bedrooms. Oh, that was a nice size.

Three bedrooms, yes. Yes, and next door, four cousins, so there were the seven kids in the double house.

And how was it heated or cooled?

Well, during the 1930s and 1940s and 1950s in my area, if you didn't heat with coal, you got written up in the newspaper, because the whole economy depended on coal.

Now that would be kind of a dirty form of heating, wasn't it?

Well, we didn't think so at the time because hard coal is a very efficient heating element. When you think of the dirty coal of Pittsburgh, that's bituminous coal; a soft coal. But in our area, we used anthracite coal, which is a very hard—it's the next phase above diamond, or below diamond, so it's a very hard—you don't get dirty by handling it. You could shine it. I mean I have pieces of coal in there that are shined anthracite. And so it wasn't that dirty. It was a little dirtier than, say, some of the gas they have today, the natural gas.

But it just meant that you cleaned the house, oh, spring cleaning and fall cleaning.

[00:45:00] Yes, but it was a wonderful heating—it was a good heating for the house. And we had a coal stove. You did your cooking in a coal stove. But if you didn't use coal, your neighbors would talk about you. They would write you up in the newspaper. I recall if people switched at that time to oil, there would be a nasty article in the newspaper about them with their name in it, because almost everybody worked in the coal mines or some related service to the coal mines.

It's interesting that in the Second World War, between Scranton and Wilkes-Barre, Pennsylvania, eighty thousand coal miners were exempt from the draft.

That was necessary.

It was a necessary commodity, and so the people who worked in the mines didn't go to war, the Second World War. But then after coal got too expensive and mining decreased as far as being a relevant part of the economic industries there, people switched to oil a lot, and then later they switched to natural gas. I notice when I go back now, my dad has natural gas for heating the house. But growing up, all we knew was coal. And if you didn't dampen your stove right, when you came home at night in the cold winter night, that stove was out and you had to restart that stove up.

Well, tell me what your living conditions were then for you and Freda when you said you lived in a trailer.

I lived in a small trailer, twenty-one-foot Viking trailer, at the test site. Freda would try to get all her personal things done before I would return from the forward areas. We'd get off at work at the same time but I worked out in the forward areas, so it was about a half-hour drive, and she would run home and do all her things that a young girl likes to do before I would come in, because in a twenty-one-foot trailer—

There wasn't much room.

There's no privacy.

There wouldn't be.

There's no privacy.

Is that about the size of this room?

Just close to that.

Oh my goodness.

A few more feet but there.

Well, you had a place to sleep and a wash-up place and was that about—?

And two beds, or a double bed.

So there wasn't much in the way of kitchen facilities or—?

Oh no, no. We were not supposed to do any cooking, although most people had a little charcoal thing that they would cook outside. In fact a lot of the couples around there, you know, we would charcoal our meats once in a while. And a lot of people had little electrical things they would plug in. But you were supposed to eat in the cafeteria. But we lived there for a while and then we moved to those apartments I mentioned to you, which are still there, across from the North Las Vegas airport.

Well, those were very modest living circumstances, weren't they?

Oh, I didn't think so at the time.

Of course not. Other people were probably the same way.

Yes.

But compared to our twenty-first century and some of our young people, you know, who think that they have to buy a home as soon as they get married, I mean your needs were modest and sufficient for your needs.

Right. Well, we bought our first home in late 1964 or early 1965, right behind Palace Station, and there was nothing there then. I mean it's hard to believe that across the street at the corner of Sahara and Rancho, which is now a fairly busy banking area, it was all desert.

Yes. I lived here.

You lived here, so you know. There was a small trailer at that corner of Rancho and Sahara that was First Western Savings and Loan. That was a trailer that was there. And from there up to Valley View was all desert, and then Wonder World was at the corner of Valley View and Sahara.

Yes, UMC [University Medical Center] was across the tracks and way away from town.

Right. So it's amazing. We lived back in Richfield Estates, which was a little group of homes that they had built off Richfield and Sahara.

Do you remember how much your house cost at that time?

Yes, we paid nineteen-seven or something like that, $19,700 for that house, and we thought that was a little high at the time.

And that was in the 1960s.

Yes, 1964 or 1965. It must've been the end of 1964 or early 1965 that we moved into there. And we lived there for six, seven years and then moved over into off Rancho and Oakey, over in that area, McNeil Estates, but that was quite a step up for us.

Oh, my parents were in that area.

Yes, we lived on Burton Avenue there. Big pool. That was uptown for us.

It's a beautiful neighborhood, just beautiful.

Oh, it was lovely, and it was lovely then. We paid $42, 000 for that house, I recall.

[00:50:00] *What year was that?*

Nineteen seventy-two.

My mom and dad were on Colanthe

Oh yes, well, we were in the same area.

And it was 1974 or 1975. Interesting. Kind of in that same neighborhood.

Yes, that was a nice neighborhood then. McNeil Estates is what it was called, but that whole area was just a lovely area, between Oakey and Charleston, and from Rancho going west up to Campbell. That was a nice area. I enjoyed that area. So we lived there until we went to Idaho.

That's interesting. Let me get back, one more question here, because as I've been reading about immigrant scientists like Edward Teller and some of the others who came to the United States and were prominent, this again is kind of an attitude question in your mind on how you felt about these Hungarian scientists rising in the nuclear testing program. How did you feel about that? I mean did you—?

Well, after I got to know *of* them, because I did not know much of them before I came here—

Before you came to the test site.

Right. The only one I had known, say, by name was Fermi because of his famous—

Enrico?

Enrico Fermi.

He's Italian?

One, he was Italian, and two, there was quite a bit of publicity of the things he did at the University of Chicago at the football field when they did the first experiment there where they were able to have a controlled criticality. So we knew of Fermi and we knew of Oppenheimer, the name, and of course Oppenheimer's name, there was a lot of question about that, was he a spy or that—

Yes, he lost his clearance, yes.

—when I was growing up, so I knew of those people and I had heard the name Edward Teller, but I didn't know enough about them until I started working out here, and then those names start becoming my heroes really. We had numerous occasions in that period of time to either see

Edward Teller and people like him, some of the lab directors from Los Alamos and Livermore. We would have a chance to see and be in their company at talks they would give, or they would come visit the test site and you would know they were there and you would see them in the cafeteria and stuff like that. And they were kind of, as far as my—speaking for myself, but I know I speak for people like Troy Wade, they were kind of our heroes.

Well, he [Teller] was very passionate anti-Soviet Union and that we had to keep the United States nuclear superior.

And I guess you either loved or hated people like Teller. I happen to be one that loved him because I agreed with what he was trying to do at the time. So it was a very exciting kind of thing for me to see these people.

Were you aware of scientists who did not agree with him, that they took the opposite point of view?

Not at that time, I was not. Of course when you live in an enclosed world like the test site—and we only saw that side of the scientific world who agreed with him—it wasn't until many years later that I started reading various books of the people who had another point of view, or a number of the lab people during the Manhattan District days who wanted to stop the experiments, *et cetera*.

*Yes, that's what Mary Palevsky has kind of done her book [*Atomic Fragments: A Daughter's Questions,*Berkeley: University of California Press, 2000] about her parents who worked at the Manhattan [Project], and that was new and interesting too.*

Yes. There was a number of them who did not want to continue. Of course Oppenheimer did not want to continue, and that's one of the reasons that—we always again tend to simplify things—but one of the reasons that Livermore National Laboratory was founded is that Edward Teller felt

Los Alamos was stopping future experimentation, and using Lawrence up at Berkeley, that they convinced Washington that they should have another laboratory, and that's how Livermore was founded up there.

Now you didn't really work at the labs themselves. You worked, let's see, in Idaho, and you just associated with those lab people, is that right?

[00:55:00] That's right. Quite a bit with the test people at the three labs, including Sandia. Back in—

Would those be higher people who finish the tests or design them or—?

Well, each of the labs have organizations that are responsible for the testing of their weapons. In Los Alamos, for example, it was called J-Division, and that whole division was responsible for the engineering and testing of all the test out here.

As opposed to development?

As opposed to the physicists. The physicists would design and identify what they wanted done. Then they would turn it over to the J-Division, who would come out here and do the testing. They were responsible. The test directors worked for J-Division. And Livermore had a very similar organization where you separated, if you will, the physics *versus* the testing people. Now they worked together obviously but the responsibility—When I was with REECo, then I was with the Atomic Energy Commission and DOE [Department of Energy], we dealt not with the physics people, we dealt with the testing people. They would identify to us what their *needs* were for a test bed out here: what kind of holes they needed, how much money we needed, *et cetera*. So I dealt a lot with a number of my heroes at the labs, Bill Ogle, for example, at Los Alamos, who was a famous test person. Bill was a local person from here who was a Paiute Indian.

Oh, interesting. Oh, interesting.

Oh yes, that's a wonderful story all by himself. He was a *Time* magazine cover man in 1961 or 1962.

Is he still alive?

No, and I'll tell you about that in a second. And then Bill all during the 1950s was the test director for a number of the atmospheric shots in the Pacific. So later in life he was our hero at Los Alamos, head of the test organization, and he was chairman for a long time of the Nevada Test Site Planning Board here, which I had talked to you [about] a little bit before. So Ogle was a kind of a special guy with special ties to this area, being of Paiute Indian background, went to the University of [Nevada] Reno, *et cetera,* at least for his undergraduate work. I'm not sure where he got his graduate work done.

So we dealt wit h people like that, and they reported directly to the director of the laboratory, so they were fairly high up [in] that division. And I would go to Los Alamos at least once a month during the 1960s, and go to Livermore once a month, and go to Sandia once a month. But mostly it was for planning and budgeting purposes. We would go down and discuss the planning of what needed to be done out here by our companies, REECo, EG&G [Edgerton, Germeshausen, and Grier], Holmes and Narver, *et cetera*, out here at the site, and we would talk about what our needs were, how many people we would need to hire or not hire, how much money did we have. We would work all those kind of things together.

Now you got to see firsthand the competition between the labs too, didn't you?

Quite a bit, and there was a lot of competition both for assignment of weapons systems, which we didn't see too much of here; that was done more with Washington. There was almost a bidding process, if you will, of which systems would be assigned to which laboratory. And when the military would identify their needs, the laboratories would, quote, "bid" on who would get

the primary work for that particular weapons systems. So a lot of our nuclear weapons are either Los Alamos-developed or Livermore-developed. Now Los Alamos will tell you the majority of them are Los Alamos-developed. Livermore will say, `Well, some of the better ones are Livermore ones.`

Well, did you see pettiness or ego sometimes create problems?

Yes, sometimes obviously it would, only from the viewpoint—by "problems" meaning we probably could've been a little more productive and efficient sometimes if they would've worked together closer. For example, we did a *lot* of things at the site *differently* for Los Alamos than we did for Livermore. Simple things, of how do you lower a device down a hole? One we'd use a drill rig to lower it down. One we'd use a crane to lower it down. Well, like many things in life it was—

What's the difference?

That's right. If it was the *same* system, it would be more efficient as far as the capability of the **[01:00:00]** people, the REECo and EG&G people, the equipment, duplicate equipment and stuff like that. But hopefully most of it was productive rather than nonproductive. There was a lot of competition for the dollars, because when we got our money from Congress through the Atomic Energy Commission out here, we would then split the money of how *we* were going to support—not how their in-house dollars were—but how we were going to support their programs at the site with our contractors. And so there would always be a little competition on how we split the dollars up. But it was kind of a wonderful job, being the person—at one time I was responsible for that coordination because I was the budget director here.

So did you have to smooth a lot of feathers quite often then?

Quite often smooth feathers.

Are there any particular events that you remember being more demanding?

Not really, because most of the time if we came to a situation that we couldn't resolve, we would go back to Washington with the labs, us and Washington people. We'd get it resolved there.

So you have something of an appeals process almost.

We had an appeals process on it. But you know, Joan, I always had the attitude—and it's not an attitude that was held by everybody and I think unfortunately—that the purpose of the test site being here was to provide a test bed for the national laboratories. Now that may not seem much to you, but to me that's a very significant mindset. There are some people who feel that the Department of Energy people, it's their test site, or there may be some Bechtel people, for example, who feel that they're the experimenters. Well, I never had that attitude. I always had the attitude, and I think Troy [Wade] does too, and Linda Smith does, some of the names you know, that our job was to provide a test bed for the national laboratories who were responsible for the development of the weapon or any other experiment, -to come to the test site and do their work, and then we had the ultimate responsibility for safety and security and those kind of things after that. And so when I was the manager—but I had that attitude even earlier when I was in budget and planning and that kind of a thing. But when I was the manager that was my attitude, that I had the ultimate responsibility for the safety at the test site. That we were not going to allow the laboratories to do something unsafe from a radiological point of view or an occupational point of view. But on the other hand, my job was to make sure that they had a test bed to do their experiments.

Now what do you mean by test bed?

By that, a drilled hole, a mine facility, you know, whatever construction and related activities that the labs needed to do their experiment, I felt was our job to do. That was one of our jobs.

So they didn't have to worry about money for that, or budgeting.

Well yes, we did, because we would divide the money up and then the work would have—

To provide those needs?

That's right. That's right. But I never considered we were the experimenters. The labs were the experimenters. We all worked for DOE. We all worked for the Atomic Energy Commission. But that's a slight difference in mindset.

You weren't trying to micromanage what you perceived as their jobs then.

Just the opposite. Just the opposite. That's correct. And as a result, I think I got along pretty good with the labs, both as a planning and budgeting guy and then later as the manager of this facility, and I always thought there was mutual respect as a result of that.

Well, do you think it helped for you maybe not *to have that engineering background which would be questioning whether or not—?*

You know, that's interesting. I never thought of it that way, but I think you're right. I was more concerned with the management aspects of running this test site than I was the engineering aspects of it. That's a good point. Now I always felt—and again this is Nick Aquilina, not everyone else talking—I always felt that at *all* the DOE sites, that the perfect management structure should be that the manager and the deputy manager, that one of them be technical and one of them be management. I don't care which is which. But we start developing in the early 1990s an attitude where both were technical. I think that's a big mistake. We may have in the past had times when both were management. I think that was a mistake. I think the perfect combination is to have one of those, the manager or the deputy manager, be someone who understood the technical things so that they could observe if there is a significant safety issue or something like that, [and] where the other one is a management person who understands the issues of procurement, of security, and you know just general management, HR [human

resources] kind of **[01:05:00]** things. So like with Bob Nelson and myself, I thought we had a good teaming there, where Bob was very technically oriented during my period of time—he was my deputy.

OK, Bob Nelson. Oh, OK, he was the one that became manager in 1994.

When I left.

OK, he was your manager for a while?

He was my deputy.

OK. Oh, OK. I thought Jim Magruder—?

No, Jim was our assistant manager for operations. OK? But *deputy* manager was Bob Nelson. Linda Smith, Bruce Church, Jim Magruder were *assistant* managers. OK? And again that was a very nice—you would like to think it was well-planned but it was probably more luck of the draw. That was a nice mix of capabilities. Linda Smith was unbelievably capable in administrative matters. Linda just has that kind of a mind.

Now was she there during the JVE [Joint Verification Experiment]?

She was my assistant manager for administration. She was an assistant manager.

Does she happen to be alive still?

Oh, Linda? Oh yes, she's very active in the museum [Atomic Testing Museum, Las Vegas, Nevada]. She's on our board of directors.

OK. Because I'm still actively collecting names, and you've been a very rich source of that. I appreciate that.

Well, Linda, she is a special person, Linda. Oh, I'm just crazy about Linda. Some of my pleasant memories as a manager. Linda in the last twenty years has lived up in Moapa Valley. [A] fifty-five-mile trip into town, and I could never beat her into the office. God knows what time she had

to get up to get into the office. But my pleasant memory is I'd go down about a little before seven in the morning and for that half-hour before we started at seven-thirty, Linda would be there and I'd be there and we'd get a cup of coffee and we would just talk, either about issues, about the world in general, or whatever, and those were some of the more pleasant times. And Linda was the kind of person, we'd sit there talking and I would say, `You know, we have to do something with this letter,` and we'd talk about it, and then seven-thirty would come and we'd go to our meetings or whatever, and about an hour later a letter would show up on my desk and it would be the perfect letter. That Linda, just in that conversation, knew what I had felt I had to do, and she would make the perfect letter, and I'd just sign it, you know, I'd just sign it. If we were having problems with any people, Linda would know how to handle them from an HR point of view. She was a special person.

Jim Magruder was our assistant manager for operations. His responsibilities were running the test site. Jim was a test controller and Jim had the perfect background because Jim worked in his early career at the test site for EG&G and he in fact invented some of the diagnostic systems, so he really understood the technical aspects of a test from that point of view.

Bruce Church is probably one of the world-renowned experts in plutonium fallout. Bruce was born and raised in Washington County, Utah, which is on the other side of St. George. He was born and raised in Hurricane, and he was a Downwinder, as we call them, He grew up curious about this downwinding effect, and went to the University of Utah and got a degree in health physics, and came to the test site. So he had that incredible background, knowing the people that were Downwinders, his own family, and being a health physicist, and becoming renowned throughout the world on plutonium fallout.

Did he by chance go to the Soviet Union? Was he one of the scientists who did?

No, he did not, but he went to Australia all the time, where the British did testing, and he was so well thought of that when there was a *major* confrontation between Australia and Britain of how they were going to clean up where they did their test site in Australia, [and] they formed a five-man commission to look at it and make recommendations. There were two Aussies, two British, and Bruce Church was the fifth. And so for years Bruce was on that. As I recall, I never **[01:10:00]** let too many people in Washington know that because I thought it was a wonderful thing and I was afraid the bureaucracy may stop it. But the Brits and the Aussies paid for all that whenever he went over there. After Bruce retired—he retired shortly after I did—he continued to provide support over there, and that commission came up with an agreed-upon plan of what cleanup they were going to do, so Bruce spent a lot of time over there. But Bruce was a special guy.

Yes.

[01:10:33] End Track 2, Disk 1.

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

Let me show you—well, yes, let's just look at them for a second. Here's one of my favorite pictures of Troy and I.

Oh, of Troy, yes.

When we were at Idaho. Troy was the manager and I was his deputy up in Idaho. So that's how Troy looked in the mid-1980s.

He hasn't changed much.

Not too much. He's getting a little older. And I've gotten a little older. Long brown hair.

You still have lots of hair.

I still have my hair. Yes.

I felt really bad that I didn't have the machine on last time as you described the pictures and the mementoes that you had.

Some day I need to put them in some kind of an order that—there was one cute one I was hoping to find. I think I've mentioned to you, we had a good relationship with our congressman. When I went to Savannah River—

Oh, Harry Reid [looking at document].

Harry Reid sent me that note [reading] "Best wishes on your new assignment at Savannah River." I went down there for the summer of that year.

Oh, that's handwritten. Isn't that nice! [Reading] "If I can help, please call upon me." In social circles, did you mingle with him regularly?

No. More with [Richard] Bryan. By socializing, I mean I would go to breakfast a lot with Bryan and stuff like that, to talk about things. When we were at the Soviet Union, one of the things we were trying to do, we would send cards home so we would have the stamp of the Soviet Union.

Oh, interesting.

You know, like here I sent to Freda and I just said [reading] "I'll see you before this arrives," you know [showing card with stamp].

Do you know how long that took for her to get that? Did it arrive after you came home?

Yes, it did. Yes, it did. The postmaster here was a good friend of ours. I don't know if you remember it, when UNLV won the national championship, he got a stamp that said [reading] "U.S. National Champs, Las Vegas, April 1991" [showing stamp]. So a lot of us wrote letters to ourself.

Oh, so you get that stamp.

Get the stamp on it. Did you know the name Dixie Lee Ray?

No.

Dixie Lee Ray was an incredible woman. She ran for the governor of the state of Washington, but she was the commissioner, the chairman of the Atomic Energy Commission during the mid-1970s, just before we changed and became ERDA [Energy Research and Development Administration], then DOE. Through the years we would use her a lot for talks and stuff. She was an incredibly brilliant woman. She's written a number of books that I have. She was a real character. I mean, she used to wear a skirt here with the wool socks up to here [demonstrating], and she was a rotund woman. She had her two dogs that she took everywhere with her. But we would use her, and she had a nice way about saying things. Here's a note I got from her that says [reading] "Just a note to tell you how much I enjoyed my brief visit in Idaho Falls and to inquire if I need to submit a voucher for the enclosed. Sorry for the dollars, but also retirement means that bills continue but the income doesn't." My people forgot to pay her. This was her nice way of Dixie Lee Ray saying that, `You didn't pay me.`

But I've got to collect someday all my—put them in some kind of an order. I've got thousands of pictures and stuff. I don't know if I showed you [showing photograph]. That's Kearsarge, [location U]19ax [N.Aquilina8; N.Aquilina10] This is at the ten-year anniversary.

[Looking at photograph] Oh, no, that's Viktor?

That's Viktor Mikhailov, ten years later.

Mikhailov. And who's this [pointing on photograph]?

[00:05:00] She works for Bechtel but she was always our person—she's the one I told you, Frances Guinn, who took the Russians everywhere, took them to Disneyland, *et cetera*. They loved her. So this is ten years later. [N.Aquilina7]

Now Troy said, He [Viktor Mikhailov] loved American women.

Oh yes, they all loved Frances Guinn.

[Pointing on photograph] Now this is you then? [N.Aquilina7]

That's me. That's me. But he [Viktor Mikhailov] was a character, if you could see by the—

Oh my goodness. Well, I was interested in his poetic language in his book. I mean he was such a philosopher. Now who's this right here [pointing on photograph] that you've got—

She's an interpreter. She's the interpreter [N.Aquilina3]. And that's Siegfried and Roy [n.Aquilina5,6] when we took the Russians.

Now Troy told me that there are two individuals here who are hiding their faces, and they are the KGB agents.

Well, I'm sure that a number of them were KGB.

Yes, he said specifically there were two.

She was our interpreter. This guy [pointing to another individual in photograph] is famous. I mean every time you see now a Soviet important thing going on, he's the interpreter. I mean look at that face. The next time you see anything from Moscow, you'll see him. Here's me here [indicating on photograph]. Paul Robinson. I think I mentioned him. He's the director of Sandia National Laboratory, but he was the ambassador for nuclear test talks back then.

Yes, you said he would be a good person to interview.

Oh, he's a special guy.

Is he still down in California?

No, no, in Albuquerque, New Mexico, with Sandia. But these are all the Soviets on this side [indicating on photograph] and these are Americans. Here's Jim Magruder [pointing on photograph] for example. [Fred] Huckabee was responsible for drilling.

Huckabee. I remember that name.

Here's Huckabee, [pointing on photograph] yes, he—

Huckabee took the Soviets, and there was a little story in one of your papers where they had been to the Mustang Ranch and you said something about Huckabee. So Huckabee is a person then.

Oh, Huckabee is a person. He used to be head of our drilling.

Did Huckabee ever escort the Soviets or—I was just wondering why—?

I can't recall if he did.

Yes, the connection between Huckabee and this Mustang Ranch, I didn't know.

You can see they had the baby white tigers, Siegfried and Roy did there. That's over at their test site [N.Aquilina13].

Now this is their lake, isn't it?

This is where they did Sedan crater-like, and then they filled it with water and put fish in it.

Now did they feel nervous about the contamination there or—?

No, they did it on purpose. They put the fish in there to show that you could eat the fish from that sea.

Now they just diverted the Shagan River to fill it up probably.

That's correct. A creek from it, to fill it up, is what they did.

Now were you one of those that went fishing here or did you just go sailing?

I didn't go fishing. We went visiting. Yes, I'm in here somewhere [[N.Aquilina13]. You can see the military officers. They had a lot of military officers. This was the head of their test site, [General Arkadii D.] Il'enko [pointing to person in photograph].

Ilyenko? Now it's interesting how deserty it is.

Oh yes, it's very similar—

To the test site.

—to our desert from that.

It's probably just not as hot though, is it?

Probably not. No, it's not as hot, although it was warm while we were there. It was like ninety degrees.

Now, is the geology less tough than the test site? Because they didn't have the drilling technology.

No, but the big thing is that their water table was so shallow. When we saw the device going down hole, almost immediately when it started to go down hole, I saw water being replaced as they went down their hole. And that's why I heard the *crack* from their test. Troy and I and others were standing four miles away from it, and when the test went off, I literally heard the *crack.*

When we did the ten-year thing, I gave a luncheon talk, and this is the interpreter here [[N.Aquilina9]].

These are nice *pictures. Oh beautiful!*

Oh yes. This is out at the site [N.Aquilina7& 8] when we did a ten-year commemorative visit out to Kearsarge. And then we had a celebration down at the Golden Nugget, and here's Troy [showing photograph] and his wife, and my wife, and these were ladies that worked in Washington. They came in for it. We had an affair then.

These are beautiful pictures.

Yes, they are nice.

I wonder if I could scan them in sometime.

I only have thousands of them, so—[Showing another photograph]. He's a Soviet scientist.

Do you know what his name was?

I forget it now.

[00:10:00] *OK. Well, let's see, you got something on the back. Does that tell—oh, it doesn't say. OK.*

I think that was the ten-year thing.

OK, where you're talking, is that—

I gave a luncheon talk. [N.Aquilina9]

OK, so there was a luncheon talk and then there was more—

There was two days of—

Lots of meetings.

Lots of meetings. Most of them were technical talks. Mine was hopefully a more humorous talk.

Oh, they were technical talks? What were they talking about?

A lot of them were people who were involved with the experiments and they went up and talked about the experiments.

So were they reminiscing?

Right.

Is there any kind of a video or a taping of any of this ?

I don't know. I don't know. I'm sure they kept some semblance of minutes or something but I don't remember if they recorded it.

Do you think they were describing the differences between the Soviet way of doing things—?

No, no, they were just fairly highly technical talks, most of them. [Showing another photograph] That's an old picture of the test site.

Now that's the Nevada Test Site then?

Yes. Yes, that's where we did Gravel Gertie experiments of testing different ways to built roofs on facilities that you do nuclear work.

Yes, there's this one [showing another photograph]. Probably goes with that. Yes, that goes together.

She's enjoying herself, isn't she? [Referring to photograph] Because he's a real character. Obviously he said something funny. He's the Los Alamos test director out at the site now. But that was the picture I wanted to—this guy's an EG&G technician. This was always one of my favorite pictures [showing photograph]. This is in Semipalatinsk and these are children of Semipalatinsk. You can see a number of them have some Asiatic features down there, although there are some blonde, what they call White Russians, but a lot of them have the Asiatic features. And he's a dandy. He was one of our technicians over there [indicating a person in the photograph]. And there's a couple pictures of him with groups that I really liked. I used to show that a lot in presentations. You can see the kids holding their flowers. They're going to school. They were going to school at that moment.

Now it seemed like they enjoyed sports too, didn't they?

This is out at the site [showing another photograph]. They tried to play baseball. They learned some baseball.

Well, it seems like I remember they played, I don't remember, was it volleyball? I think it was a volleyball contest between the Soviets and the Americans, and professional Soviets lost to the Americans, and so they had a rematch and that time the Americans lost. It does seem to be a real big deal.

Well, they played a lot of—now here's Viktor ten years before this picture [showing another photograph]. This is when he was actually out here. We had a number of his staff. This is one of our guys, Chuck McWilliam.

I'm going to be interviewing him.

Yes, Chuck. He just got back from an around-the-world trip on his boat. And his wife.

Katie. Yes, I'm going to be interviewing Katie too.

And here's over at the Soviet Union [showing photograph]. A lot of our guys with their hosts. Now here's—we had a lot of banquets at the site, with a lot of toasting. They're always—he was the head of their delegation here, and there's me toasting somebody. There's Troy [N.Aquilina20].

That is such a nice collage. [See N.Aquilina 16-21]

And Troy up there. Of course that's the famous picture of the test [showing another photograph]. This is over in Russia. The Shagan test [N.Aquilina2].

OK, so that's where it was, and this is where you guys watched it?

No, this was EG&G, and Los Alamos had their experiments here. We were four miles up this way [indicating direction on N.Aquilina2 & 19]] up the cableway here. This was our experimental station, about a mile from the—

So this is the Nevada Test Site?

No, this is—

This is Semipalatinsk.

Right. See, we shipped our drill rig back on a ship, so that's—

Now was this the tenth anniversary souvenir?

Right.

Oh, that's a really, really nice collage of things.

This is their experimental trailer out at the site. Of course, the drilling operations. Here's where we're loading our drilling equipment out at Indian Springs into the C-5s that flew over there. And here's when the Soviets came out and were doing inspections out here. There's Viktor again, with some of our drilling people. This is when they went to Washington, D.C. Here's Paul Robinson again.

Yes [looking at photo]. One of the ambassadors in Geneva.

Ambassador. Right. We were presenting books to each other, to the Soviet guy here. They loved these cacti, the Joshuas. They wanted to move some over there.

[00:15:00] *They are unusual, aren't they? Prickly things.*

[Showing more photographs] There's Troy presenting an American flag to a Soviet [N.Aquilina21]. Here's Viktor on one of our tours that Frances took him on. Here's Chuck McWilliam. So it was an exciting time, as you can imagine, back then, but like I say, I only have thousands of pictures. I have books back there of pictures.

Well, Troy said that you've been talking to him, that the JVE as a museum display would be a marvelous topic.

Yes, I think we should someday in that temporary space put up some of those kind of things.

Well, it looks like a lot of your collections would go well with that.

Oh yes. You know, actually that song was printed.

[Reading] "The Wild West is Where I Want to Be." Oh! [N.Aquilina22]

That's a test site song. It was actually recorded and words were written by Tom Lehrer.

[Reading] "Along the trail you'll find me loping, where the spaces are wide open, in the land of

the old AEC, where scenery's attractive, and the air is radioactive, the Wild West is where I want to be." Troy sings this very well, this whole song.

Oh, how funny! So you guys have a Nevada Test Site song. Oh gosh, that's just like your old fight song with your high school.

That's exactly right.

Oh, that's cute.

The Steakhouse was internationally known in the old days. No longer is it, but we used to have lobster tail and tenderloin fillet for $6.50 out at the site. And people from around the world would talk about the quality of the food at our site. It no longer has that reputation.

[N.Aquilina23]

Well, they don't have these prices out there anymore either.

They don't have those prices, I'll tell you we used to [pay] $2.50 for a bottle of wine. Them were the good old days. I spent a lot of days in that Mercury restaurant.

Yes, your restaurant background came in real handy there, didn't it?

Well, it was funny. During the Soviet visit here, we would have to feed them a lot in formal banquets. Every night they ate in the Steakhouse. They would just go over and eat. But then we would have formal banquets, and Frances Guinn, she still laughs at it to this day, because I would want to know the menu and I would critique the menu to make sure that it was complementing things. But the one thing that used to bother me, and if I go to a banquet today it bothers me if they serve you a salad and then they come around with that ten-pound thing with different dressings on it, and you've got to take a blob and put the blob on top of your salad. I hate that. I want a tossed salad that's tossed with the dressing. And so they used to always kid me about it, that I would demand they got rid of that ten-pound thing and they would select whatever

salad dressing they want and toss it in the kitchen and serve it. And so here I was the manager and they would send me the menus down and I'd go over the menu. And Frances laughs to this day that the cooks used to get such a kick out of that.

Isn't it interesting how your background in restaurants—

Well, it affects everything you do. It affects everything you do.

It does. It does. And for good.

Yes.

Now there are just a couple of notes as you were talking that I kind of wanted to go back to, you know, because you were describing some of the people that you surrounded yourself with, your teammates. Often we surround ourselves with the kinds of people that reflect a certain can-do [attitude]. I think I kind of want to go back to that because is there a possibility that the people that you selected to surround yourself with, one of the reasons why it was a positive team was because of this can-do attitude?

Well, I think there was two things. One, that I think I gravitate toward people like that, and secondly, since I was not a new person being assigned to this test site, but I was a person who grew up on this test site, that I knew a lot of these people. Like I knew Linda Smith when she **[00:20:00]** was a young nineteen-year-old lady. I knew Bruce Church for years. I knew Don Schueler for years. The only new person was Bob Nelson. Bob came here to Nevada while I was up in Idaho, but I got to know him through that period of time. But all the others I knew as young people at the site, working their way up. And I think there's certain advantages to that. Most organizations you go to today, people are appointed from other places and they really don't *know* the backgrounds of the people as they grew up into their job. I thought it was an advantage that I

knew all these people growing up, and so I knew their capabilities and their can-do kind of an attitude.

And you got to pick them.

And I got to pick them. In my case, when I came back from Idaho as the manager in 1987, they were in the organization, but obviously I could've moved them to other positions or got rid of them, but I chose to have a structured organization where my key people were the ones I've mentioned now a number of times: Jim Magruder, Bruce Church, Don Schueler, Linda Smith, and Bob Nelson. That was my key team. At that time Yucca Mountain was under us back in those days. It's not today. And so I had the—Carl Gertz was the head of that organization, and so I selected Carl. So yes, I think there was probably, in my case, a tendency to move toward people who had a more can-do, positive attitude rather than a negative, bureaucratic attitude. That's probably correct.

Now when you were given the task of sending drillers over to the Soviet Union, did you then go to your team and say, OK, how are we going to do this?

When the people in Geneva—Paul Robinson was the ambassador there—were negotiating what activities would we do on their test site and what activities on ours, one of the things that *we* needed to do was to have a hole drilled parallel to *their* emplacement hole where they were going to put their nuclear weapon. We needed to have a hole drilled thirty-one meters away and to go down fifteen hundred feet or so, exactly thirty-one meters all the way apart. Meaning that if the emplacement hole curved, we had to curve with it. And so we were given that responsibility to do that. The Soviets' ego—the head of their test site, General Il'enko—was I think insulted by that, because he felt he could drill the hole for us. So he in fact—because we drilled their hole out here—he tried to drill the hole and failed miserably. It did not meet our requirements. So we

had to send our drilling people and our drill rig over there. So we went to Huckabee, who was head of our test site operations at the time, construction activities, and working with REECo at the time, they picked the drillers to send over there. A lot of people don't know that the test site is well-known by those who know these things as having some outstanding drillers. In the oil fields you just drill a hole. But at the test site you have to drill a hole to the specifications of the physicists and the engineers. There's quite a difference. Plus in the oil fields you drill a small diameter hole, because all you're concerned [with] is going down and getting gas or oil. Here we have to drill holes that are all different sizes but predominantly ninety-six inches in diameter. That's a large hole, ninety-six inches in diameter, and drill it straight in plumb to the bottom of the hole thousands of feet, because you're going to have to put a two-hundred-foot or so experimental facility down that hole. And if it's not straight in plumb, you'll hang up; you can't get it down. We also do wonderful directional drilling. By directional drilling, you know where you are at any given time, if you're curving or whatever. So we had to go to the Soviet Union, and out of Indian Springs on C-5s we sent our drilling equipment, our drill rigs, and then sent over our drillers.

[00:25:00] *Now the solutions you came up with took some time and some creative problem-solving though, didn't they? I mean those solutions weren't automatically, you know, in your mind, because Troy Wade said your first reaction was, You've got to be kidding me.*

Well, it was You got to be kidding me because of the logistics more than the solution. We knew we had the best drillers in the world and the equipment. The logistics of getting that equipment there and then getting our people there under the requirements of their test site is what I meant when I said, You got to be kidding. But we in fact sent those C-5s out of Indian Springs with the equipment, then sent our drillers over there, and over the next few months they were

able to drill a hole that was parallel to their emplacement hole and met our requirements to do our experiment, which was termed CORRTEX [Continuous Reflectrometry or Radius versus Time Experiment]. And it worked out very successfully. So our drillers went over there, they worked six twelves, they had two shifts, they were working twenty-four hours a day, two crews worked twelve hours and then twelve hours, and drilled a wonderful hole. I think it really teed off the Soviets at the time, that they could not meet our requirements but our drillers can go over there and exactly meet our requirements.

Well, and Troy Wade had said that it was a real surprise to find out that a country with as much oil export as they did, for them not to have that drilling expertise.

That's right. That's correct. But as I said, drilling for oil or gas has totally different requirements than we do, from an engineering point of view. Drilling is an expensive proposition if you do not want to go the way Mother Nature wants you to go. By that I mean if you just drill, Mother Nature—by the geology and the formation of the rocks, the hardness of the rocks—will often direct your drill bits. So if it happens to go this way and then this way [demonstrating], it doesn't matter. That's a cheaper way to go because you're just going the path of least resistance, if you see what I mean. But if you have to go to exact points and not what Mother Nature's allowing you to go, it becomes a very interesting thing. In the oil and gas industry, they just drill, and they want to go to a certain depth and they want to find oil or gas. But in our business, both at the test site but more in this case at the Soviet Union, we had to specifically understand the curvature of their emplacement hole and have the curvature of our drilled hole exactly thirty-one meters apart. And that was the fascinating thing. They just didn't have that capability to do that. But when they came to the [Nevada] test site, we drilled the hole for them and met their requirements.

Now can you compare and contrast what you saw in the Soviet nuclear program with the American nuclear program, maybe what their strengths were versus *our strengths?*

Yes, and I'm not able to do that from a physics point of view, but from a support and a construction point of view. A couple things that I saw different was obviously they build some technical equipment very well. Their oscilloscopes, for example, which measure some of the information from the tests, were very good, very sophisticated, and met ours with any sense—

It seemed like their weather predictability, was that an area that was also quite good?

Probably. They weren't as concerned about it as we were, from the safety point of view. I'm sure their predictability, the ability to predict the weather, was good, but their concern for it wasn't at the same level of importance as ours. Their computers, interestingly enough, didn't meet our standards. In a lot of cases, we believe they just used purchased computers out of IBM or whoever, a hardware company in the United States, and that was interesting because of their oscilloscopes *versus* their computers. I really believe that it's a case of money and emphasis, that they certainly could have the capability in any singular area, but they didn't put the emphasis on those areas. And then of course as I've mentioned a couple times now, their drilling ability was not up to the standards of our drilling ability. But **[00:30:00]** generally they were very capable from an engineering and construction point of view.

Well, Troy Wade said they sent their very best.

Well, we had their A-team. We always knew that.

Yes. He said that the agreement was supposed to be that they were not to be hand-picked.

They were hand-picked.

Yes, that's what he said too.

And they were very capable, very capable people.

Yes, that's what he agreed, that he was almost surprised at how bright they were.

Viktor Mikhailov, who is not only an interesting person but he was an exceptionally bright individual, you know later he became their ministry of atomic energy, so he went up very quickly, even though he had, I would imagine to them, an abrasive personality, because he was very outspoken.

Yes. "I Am a Hawk." [I am a Hawk: Memoirs of Atomic Energy Minister Mikhailov *(Edinburgh: Pentland Press, 1996)]*

"I Am a Hawk." And I would imagine that some of the leadership over there felt he was very abrasive, but he still went up in the ranks and was very capable.

Well, I was interested that his book emphasized over and over again how much more money the Americans had to spend on their nuclear program than that the Soviets and Russians were providing.

That was the Reagan theory, wasn't it? We'll break them financially.

Yes, and they did. They outspent them.

And we did. We outspent them and—

Yes, Troy said that their technology was not that far below our own, that the big difference was that we had more resources with which to continue this fight, this nuclear—

Well, you can go back to the postwar days. The intelligence community was *amazed* at how quickly they developed their first nuclear capability. Now a lot of people to this day—and I believe Thomas Reed in his book says that at first it was so important to have success on their first test, they actually copied the device we used in Japan.

Yes. And I have found other Russian historians who said they've gone into the Soviet nuclear archives which say the same thing, that basically they stole an awful lot of technology to develop it.

Right, and they felt they had to be successful from that first one. But then after that, how quickly they developed thermonuclear capability and got into the hydrogen bomb, which frightened us at that time and frightened our country, from the viewpoint of how quickly they did that, it surprised everybody.

Well, they did larger explosions.

Oh, much larger. They did one that, you know, it's argumentative that it was fifty-eight megatons or sixty-five megatons, but it was certainly up around sixty megatons, [for] an atmospheric test. [What is] interesting is I believe that General Il'enko, who was the head of their test site in 1988, was the test director for that particular shot back in the 1950s. But they did that up at Novaya Zemlya [also spelled Novaia Zemlia] up in the North Sea, and it was in the area of sixty megatons.

Did you get to see their concern for radiation, pollution, safety, did you get to see and contrast our program with theirs at all?

I thought that that was secondary in their priority list. I also thought that they tried to imitate for that one test a number of our activities for us to see. I remember when Jim Magruder and I went to a pre-shot briefing similar to what we would do at the test site here—weather, where people were, and those kind of things, safety rather than the experiment itself—that you could see that they hadn't done that too many times, that they were trying to imitate our activities out at the site. Also, from things I've heard, read, and we observed over there, a lot of the tribes of people

in that general area, I think through the years, were either accidentally or intentionally exposed to perhaps some radioactive fallout.

Yes. Well, unfortunately one thing about the Soviet Union is they had little regard for ethnic groups other than Russian.

That's right. That's right.

And that wouldn't have mattered to them.

Yes. Now they would not admit that to us, but that was just my observation over there, that safety really had a secondary or tertiary priority.

[00:35:00] *Well, another thing Thomas Reed mentioned was plutonium contamination in lakes, and also their non-accountability in the things that they built, that they would use very, very expensive pieces and parts because it didn't really matter, the cost, and there was no accountability, no recordkeeping that emphasized efficiency.*

Well, they were truly in an arms race at that time, you know, during the reign of first Stalin and then the people who followed him, Khrushchev and on. They were truly in an arms race and I think safety [of] people, and what they were doing to their economy, they could care less.

Yes. Well, I think it's interesting that the cost of an atomic program is not just simply in the building of the weapons, but there's also the cleanup, the cleanup is part of it, and also can your economy sustain it? Those seem to be things that are even separate and apart from the explosions themselves.

Oh, no question about it. We're finding that out in this country, the cleanup. And again it is so easy to look back and second-guess, but if you live through an era, and we felt that we had to defend this nation against nuclear attack or that we had to have a posture with the Soviets that there would not be nuclear war. And we began building and using reactors in Hanford,

Washington, Savannah River, the activities at Oak Ridge, that we now have to pay for that cleanup. But there was a reason at the time for doing it, and nobody ever imagined what the cleanup costs today would be, using today's standards. We're using standards that didn't exist in the 1940s and 1950s to clean up these activities.

Well, I was surprised again, going back to Tom Reed's book where he talked about the Russian willingness *to destroy their weapons but they wanted the Americans to pay for it, and the Americans* did *have money that went over there to help them to destroy those weapons, but those funds got mismanaged.*

Well, I'm sure they had the Nunn-Lugar money. It was called the Nunn-Lugar bill. We spent a lot of money over there. Sandia does a lot of activities over there, as does Los Alamos and Livermore, but Sandia did a lot of activities over there, and a lot of that money flowed into the Russian economy.

Now was that after the fall of the Soviet Union?

Yes.

Because I was really surprised when Troy Wade talked about after the Soviet Union, that the people from the labs went over to Russia to help because those people needed their help.

I was totally surprised at that trip. I knew about JVE but I did not know that they went over there again.

Oh, we've got all kind of people over there *now*, and we have all kind of—we have British people over there. You know, the concern wasn't—there might've been a humanitarian aspect to it, but the second aspect was we were concerned about the security of those weapons, both from a security point of view and from a safety point of view. We felt that we *had* to go over and help them. It's like a child. I mean you have to go help a child so he doesn't hurt himself or hurt you,

and that's how *that* was over there. I mean we had to go over and show them how to safely ship some of those weapons so they wouldn't be stolen or they wouldn't be attacked by terrorism. How to take them apart, *et cetera*. So we were looking more from a *safety* point of view and a security point of view as much as from a humanitarian point of view.

So the JVE not only helped to bring the Soviet Union to a verification*, a successful verification experiment, but it also paved the way for Americans to be able to go over there when they fell and they needed help with their—*

Indirectly connected, not directly connected. Remember, the purpose of the Joint Verification Experiment was to get to a point where a treaty could be ratified. Now when you do something as complex as that, there's obviously fallout, if I can use that term, fallout into other areas, and of course that opened the door and paved the way for other things. But the purpose of the JVE was **[00:40:00]** to get the Threshold Test Ban Treaty ratified by our Senate, and to establish a process and protocols so that each nation could set up a system to verify the yield of the testing on both sides. Now testing *ended* right after that, so we didn't have to *use* that process, but it opened doors of communication. Now when the Soviet Union then dissolved, if you will, and became separate nations over there, they had their stockpiled weapons. They had this stockpile of waste, they had this stockpile of special nuclear materials, and *each* of those countries didn't have either the economy or the know-how or the desire to do much about it. So from a safety point of view, and again I'm repeating myself, but from a safety point of view and a security point of view, countries like the United Kingdom and the United States felt we had to help out in that area.

Now were any of your people among those who went over there, or were they were just the lab people?

It was mostly lab people and contractor people who went over there. There was very little involvement by our people except in the area of some remote sensing kind of things in our NEST [Nuclear Emergency Search Team] capability. But the majority of the work—a lot of the work was done by Sandia National Laboratory, and then contractors, a lot of the contractors did it. But this site [Nevada Test Site] didn't have too much to do with the follow-on activities.

OK, so if I'm able to interview maybe some people who went over afterwards, I don't know, is it opening up about what their nuclear program—are they exchanging that kind of information more and more?

Oh, there's constant—constant. We don't hear much about it but there's a constant level of interchange. And like I say, there's a congressional law called the Nunn-Lugar Act and money was appropriated, significant amounts of money were appropriated. And the United Kingdom does—I mean some of it is as simple as the blankets that you put over nuclear weapons that will not allow a bullet to penetrate and stuff like that, protecting it from any terrorist or accidental kind of attack. Some of it is just how do you take them apart and how do you do inventory of materials and stuff like that. So there's a *lot* of activities, but outside my scope and after I left.

Have you seen how different administrations, Democrat, Republican, have affected the work at the test site over the years?

Oh, significantly, especially in the area of budget and priorities. You know, you can go back and track a lot of the budget and you almost know who was in office at the time. During the Jimmy Carter reign, there was a lessening of not only budget but the priority. But during the Reagan [administration], we had a very robust kind of activity at the site.

Although when I compare it to the Soviet Union, it doesn't look like they did a lot more tests *than the Soviet Union did.*

Yes, but never measure tests by numbers of tests. Tests in the 1980s became so complex and sophisticated that a test in 1988, say, might equal fifty tests in 1960 and 1970. The complexity and the ability to get diagnostics out of a test became more sophisticated as time went. And we can do things in the 1980s and early 1990s that weren't even *thought* about in the 1960s.

Diagnostically speaking?

Right. And to think of—also, the other is what you were doing the tests for. Perhaps in the 1960s and 1970s, you were doing a test as a development of a specific weapons system, where in the 1980s you were looking at much more complex, sophisticated things, of brilliant pebbles or antiballistic missile systems in outer space and stuff like that. And you were also starting to look at reliability and safety issues. But there was just no comparison. I remember some tests in the 1960s, heck, we would do them in six, seven weeks—as far as activities at *this* site, not in the labs **[00:45:00]**—from start to finish. In the 1980s, it might take us two years to do the test. Or just look at the number of cables that go down. You're talking about a few cables back in the 1960s and you're talking about the equivalent of *thousands* of cables going down in the 1980s. So the *number* of tests mean nothing. In 1962 I think between the Pacific and the test site we did ninety tests. That sounds incredible. I think in 1987, 1988 we might've done twelve. But those twelve equaled *thousands* of tests during the period, *thousands.*

Were good ones. They were really good ones. OK I had been curious.

Yes. No, so numbers are very misleading, and I often see people say well, the Soviets, this and that. That doesn't really mean anything. All you have to do is look at the cost of some of them. That last test that we did not do at the site, the one they now use as a kind of a tourist place—*Icecap.*

Icecap was a British test and it cost probably $70 million, maybe more, to do. And that was relatively simple, but some of the other major tests out there, in today's dollars, would be $100 million or more. Where back in 1962, we were doing them for a million dollars. So numbers of tests isn't the criterion. It's what you get out of a test and what goes into a test.

So did you see—I mean it seems like in each administration, there's a big long list of treaties. It seems like every administration comes up with a new treaty. Did you see practical differences from different treaties that went into effect?

Well, certainly. The treaties that applied to nuclear testing, we did. The Limited Test Ban Treaty of 1962-1963 obviously was a *major* change to what we did and how we did business, especially with some of the subtitles to that treaty that talked about not only *not* doing testing in outer space or in water, but also controlling how much radiation, *et cetera*. So that changed a lot of things out here. Then we went to the Threshold Ban Treaty of 1974 that limited the *size* of the shot, so you had to do those kind of things. So those kind of treaties obviously affected us a great deal. Now as far as some of the other treaties concerning weapons *systems*, START I [Strategic Arms Reduction Treaty], START II, START II treaties, they eventually affected us in the flow down because then the *labs* would have to start looking at different kind of experiments. And so we would see it in a different way at the site because we were doing different experiments. So all those treaties had one effect or another on activities at the site. Some we knew about and some we didn't really know about but they affected us.

Were there any treaties that seemed totally useless?

Not from my point of view. I never really got into the politics of all of them, so no, not from my point of view.

I was just surprised at how many *treaties they were, and it made me think, is a solution to our world's problem* really *in one more treaty? Because it seems like there's already* hundreds *of treaties that have been made.*

Yes, but remember, a treaty is only as good as the people who signed the treaty live up to the requirements of the treaty.

Yes, and that's the problem with the Comprehensive Test Ban.

The Comprehensive Test Ban Treaty is a very interesting one. I'm not sure what it all means, and if you do sign it, do you have ways to verify that the other guy's keeping their part of it, and what's the definition of some things, like the subcritical experiments that are done out at the site now. Do they fit within that or are they exempt from that? But I'm sure the Soviets are doing subcriticals too. So yes, there's treaties and then there's treaties. As usual, I think America tries to abide by treaties. Sometimes we're the only side but I think we do. After 1976 we made every **[00:50:00]** effort possible to live within the treaties of limitations on yield. After 1963 we made every attempt to try to live within the restrictions of the Limited Test Ban Treaty. So you know we tried to live by them. Whether other countries do, sometimes you don't know.

Well, you had kind of wanted to tell me a little bit about Amchitka, and I don't know if I can still do this. According to my thing, we've got twenty-nine more minutes left. Would you like to talk about Amchitka or should I just save that for another time?

Well, there's very little—let me just tell you quickly about Amchitka and my involvement, because I was out at the test site at Amchitka and therefore our responsibilities at this site, the Amchitka activities, were under the oversight of the Nevada Operations Office and Livermore. It was a Livermore test. It was an Edward Teller test to be done out there. And it was the proof test for the Spartan warhead, which was our first large antiballistic missile, called Spartan. And so

they wanted to test that and it was large enough of the test [that] it couldn't be done here on the continental United States. It was in the area of five megatons. So they selected Amchitka Island where we had done other smaller tests in the past. So we went to Amchitka, but it was such a major logistical issue that we formed a separate office within the Nevada office to go out there. At *this* site—I was working out at the test site in what was called the Nevada Test Site Support Organization—what we did is provide support. If they needed things, we sent them. If they needed drillers, we sent them. If they needed equipment, we sent it. If they needed procurement help, we did it. And so a lot of our people went out there. We sent some people who were very good at mining and drilling, people who understood water pumps because you had a big water issue on drilling that hole; you had to pump out the water. So we spent a lot of time, and the Nevada office, Bob Miller was the manager at that time back in the late 1960s, early 1970s, *they* spent a lot of their time and energy on it because it was such a major high-profile kind of a test. But at the [Nevada] test site, other than providing support and people as needed, it didn't affect our operations out here too much. As you got closer to test day, we became greatly engrossed in the *interest* in it, and we would have a lot of briefings and we would send a lot of people there, for a number of reasons. One, the yield. Two, it was Edward Teller's personal test so everybody was nervous about that. Three, Greenpeace, which was the first time we had heard of Greenpeace, was doing major protesting against it. In fact, they sent their ship out there. They were making statements to the world that we were going to cause a tsunami in the Pacific Ocean that would wipe out the Hawaiian Islands. So there was so much intense pressure on doing this shot. There were a lot of construction problems because at depths of almost six thousand feet, they had to mine a room out about the size of this room here, and they wanted it essentially dry because they were going to simulate outer space and they would need to make it almost a

vacuum, and that's an interesting problem when you're on an island six thousand feet down in a room cavity this size they would mine out, with all the water seeping in, and you need to create a vacuum. So there were a lot of those issues. And then the famous Dr. [James] Schlesinger, who was then the chairman of the Atomic Energy Commission, personally went out there with his wife and his daughter.

So you had a head honcho too.

Top honcho. He showed up on the island unannounced the day before the test. Our manager almost had a heart attack at the time, Bob Miller. I'm glad it wasn't during my time. But the test went off and was very successful, and a tsunami did not occur, *et cetera, et cetera*. So Amchitka was a construction wonder of the world, in addition to being a significant nuclear test, and the **[00:55:00]** logistics, if you ever look on a map, it's the second last island in the Aleutian chain. It's closer to Russia Siberia than it is to the United States. And just the transportation of getting people and equipment there, with that climate, I mean there are stories that are unbelievable of the Reeves Airline [Reeve Aleutian Airways], which was then the small Alaskan airline that we had contracted with to fly in. Some of the stories of those pilots, getting that plane in there with fog conditions, rain conditions, snow, are unbelievable.

It was very difficult.

Oh my goodness. We still do some monitoring there and people go back every year or two just to monitor to see if everything is OK.

Were there any casualties, or everything went well then?

Oh no. Yes, there was probably some construction injuries, but we had no deaths.

But with the fog and things, there was close calls?

I'm sure the people on the plane would say there was a lot of close calls, but we never had an accident, which was miraculous and I give all those pilots incredible credit for doing all of that. But that was quite an interesting time. You know, I think I mentioned to you in our last talk, in that two-year period we had three things happen here that would probably *close* activities today. We had Baneberry out here, which was a major leak. We had a member of the Atomic Energy Commission crash into Lake Mead and get killed. And we had Amchitka, all within that two-year period. Again, I'm glad I wasn't the manager in that two-year period. I'm glad Bob Miller was. But that was quite a historical period of time. But [with] Amchitka, a lot of the people who spent a year or two up there have a lot of stories, logistically and otherwise, to tell.

What are some of the names of those people?

Well, most of the people who were there, you know, that's thirty-three years ago, are either dead or retired or gone.

Yes. Are there any around that could tell stories?

I don't know if there's any that I can, off the top of my head, remember. There was a couple of young construction kids I know who don't live here now who were out there as construction engineers. But I can't recall anybody that's here. There are a number of people who, you know, who have gone up many times *since* to do the monitoring, but I can't think of anybody who's still working that was involved with—I'm sure there must be some but I can't think of any.

Yes, because that has kind of an infamous, or at least—I mean Baneberry has an infamous part of the test site history, but Amchitka, you know, happening at the same time, probably some of the same people witnessed both.

Oh, I'm sure. I'm sure.

Yes. Now there was one little detail that Troy Wade told me, that I just wanted—and you were present, I believe, at the same time. This was when Troy and the Soviet delegation landed at McCarran Airport, and he said that Palenykh said, `We don't want to be here, we don't trust the United States, and we don't think this is going to work.` Do you remember that?

Oh yes. Palenykh. No, I do not. That probably happened on the plane as they flew in. I was meeting them. That was in January of 1988. Troy was the acting assistant secretary for defense programs and I was the manager here, and they were flying in on a chartered plane. Back in those days we had, adjacent to the airport, available to the runway, we had facilities there. EG&G had our airplanes out there. We now have them out at Nellis [Air Force Base]. Back in those days we were adjacent to that south runway. We had facilities there and airplanes there, and they would land at McCarran, but then they came over to our facilities and they disembarked **[01:00:00]** at our facilities over there. So I was there to meet and greet them as they came off the airplane, put them in buses, and then we were going to go straight down the Strip so they could see the lights of the Strip, and we took them to the Golden Nugget. I think I told you last time the story of the Golden Nugget, where we housed them that night at the Golden Nugget, and then the next afternoon we took them out to the test site. So I was not on the plane. I met them as they landed. And so I was not part of that conversation with Palenykh.

Well, Troy remembers that this is what Palenykh said to the press.

Yes, I don't recall that.

Yes. OK, I just wondered if you'd remember it because he said that they had talked—well, they were supposed *to decide together what they would say to the press and Palenykh's statement came as a big surprise to him, so I just wondered what you—*

No, I don't remember that. Palenykh was a very astute politician, statesman, very courteous, very well-spoken kind of a guy. He's passed away since. He was in that picture I showed you, Palenykh. And I always kind of liked him in that sense, that he was always very respectful of everybody and very smart, not as a technical person, not as a testing person, but as a politician-statesman kind of a person, kind of the ambassador type. He dealt a lot with Paul Robinson over in Geneva.

Now when the JVE had their press conference the first day that the Soviets were here, and this was just according to the archival documents, the schedule had said that the press would get to meet them and I believe there were a bunch of press people who came out, but the press didn't get to actually ask any questions. There was some newspaper articles that said they were allowed to be in the same room and then they were quickly told to leave.

I don't recall that.

You don't remember that at all?

No. As a matter of fact, I thought we had a number of opportunities during the next eight, nine months, from January through September, where there was a lot of opportunities with the press to meet the Soviets. The Soviets were more controlled than we were, so it was the Soviets who established a lot of the protocols of how they were going to respond, than us.

Yes, they didn't want any connection with the press.

Well, a lot of them were told that they were not to speak to the press, that Viktor Mikhailov and Palenykh would do the talking. But that's a lot of foreign countries. The Americans, we let everybody talk. But you go to most countries, there's a strict protocol, and I don't mean just people like the Soviet Union. I mean when you go to Great Britain—we used to go to a lot of meetings there—they have a different, what's the word?

Class system?

Well, maybe class system, but certainly certain people do all the talking for them, where here, you know, you want to talk to our driller, go talk to the driller. So it's quite different in most countries than it is here, as far as the press. But those protocols were not ours. They were theirs. But I remember the day *of* the test, we had a big press conference out at the CP [control point] area and they asked a lot of questions, but again Palenykh and Viktor controlled or answered the questions. There was a couple people who, when they were told, they responded, by those people. But that was *their* way of doing business, not ours.

OK. Well, that was one of those things. Well, we've only got about fifteen minutes on here, so we kind of have to wind up. Is there anything additional you would like to say? I mean you've been giving me all kinds of—you've been covering a lot of the questions that I had asked or what I had made.

No, I—

OK, this is a personal question, because part of your background—do you have any children?

[01:05:00] Oh yes, I have two children. I have a boy and a girl. My son David is a mechanical engineer, graduated from the University of Idaho in Moscow, Idaho, has worked all around the country as an engineer in various fields, the last one being Mars Chocolate in Lancaster County, Pennsylvania.

Engineers are part of the chocolate industry?

Well, he ran the maintenance and reliability program for Mars Chocolate. But he's worked in plastics, in petrochemical, in oil and gas, in nuclear. And now he's moved to Las Vegas and bought his own company, and he's running a company here in town in, of all things, auto glass

replacement and repair. He's busier than he's ever been in his life. He's run it for two months now, and his wife. So that's what they're doing right now.

My daughter lives in Idaho. She has a couple kids. She's an LPN, licensed practical nurse, and this last year she was the school nurse in the Idaho Falls school as an LPN. And her kids are sixteen and thirteen. They'll be coming down next week to spend a month with us.

Oh, how nice! So you have two grandchildren then.

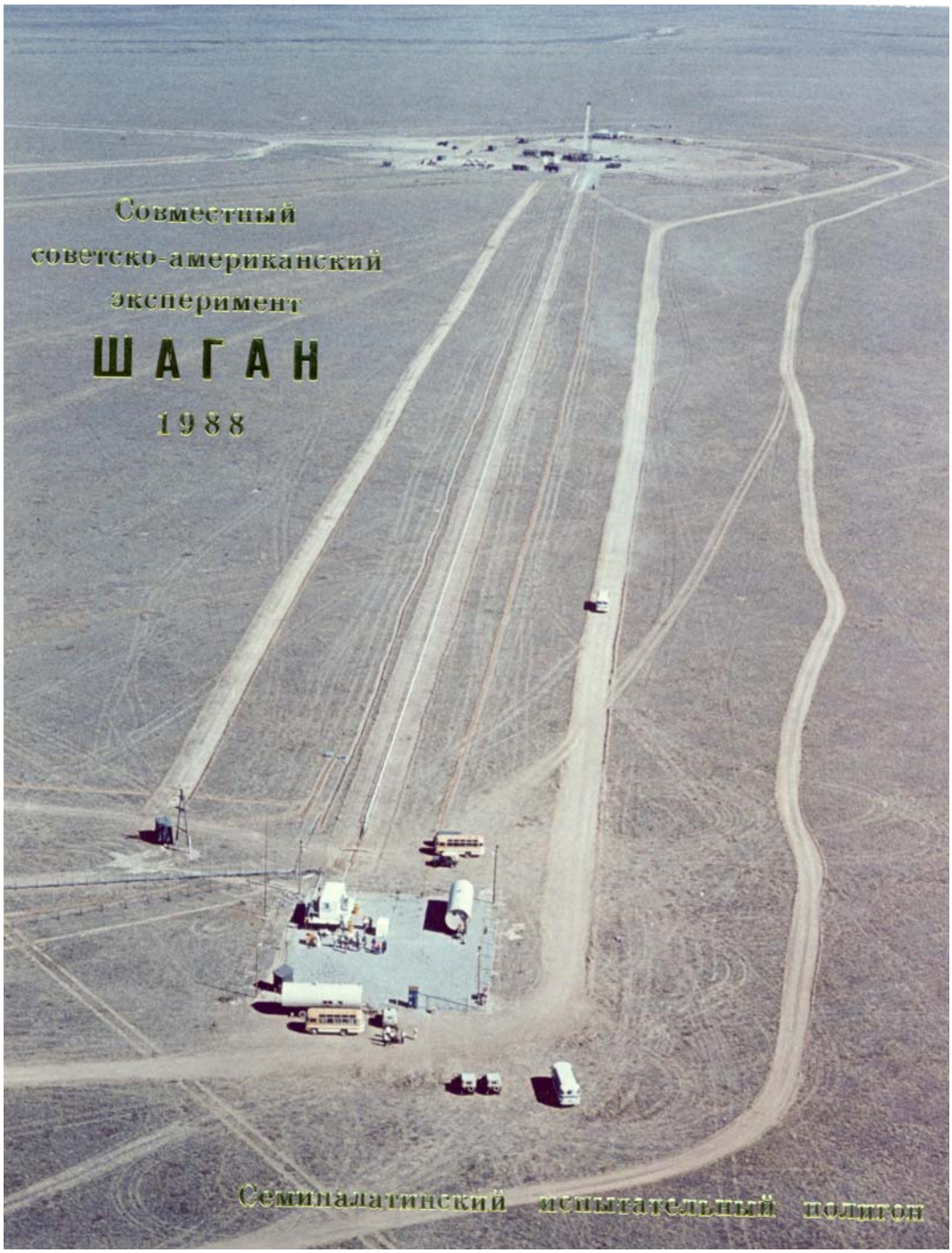
Two grandchildren. Yes, Dave and Melinda do not have any children. So that's my family.

That's your family background

1:06:45] End Track 2, Disk 2.

[End of interview]

N.Aquilina 1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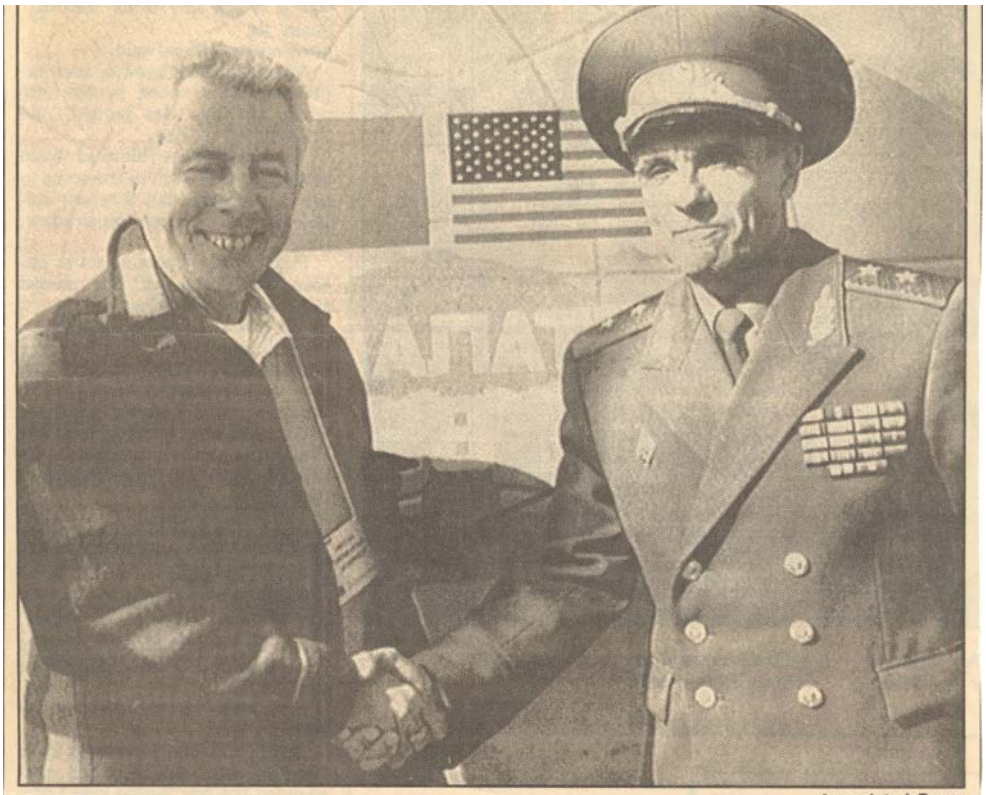


Associated Press

BLAST A SUCCESS - Chief of the Soviet testing ground Lt. Gen. Arkady Ilyenko, right, shakes hands with Nick Aquilina, of the DOE Nevada operations office, after the test.

Americans witness nuke test

Pentagon official denies U.S. test exceeded limit

Associated Press

SEMIPALATINSK, U.S.S.R. — The land heaved and windows broke more than two miles away Wednesday when the Soviet Union detonated a underground nuclear bomb for the first American experts to witness a Soviet nuclear blast.

The Americans stood in a chilly wind on the barren test site at the Forward Command Post Semipalatinsk Polygon about 1,700 miles southeast of Moscow in the republic of Kazakhstan.

The wind blew the Soviet and American flags in the direction of the test range, far from the nearest settlement on the steppes of Soviet Central Asia and a four-hour bus ride from the city of Semipalatinsk.

As the shock wave rippled out, the ground shook and a low rumble began. Within moments of the 11 a.m. blast, a reddish dust cloud rolled above the spot where Soviet scientists planted a nuclear device in a shaft drilled 642 yards into hard rock.

Some observers seemed a bit queasy from their proximity to ground zero, only 2.4 miles away. Soviet observers watching a similar test on Aug. 17 at the Nevada Test Site, remained about 30 miles from the blast site — too far away to feel the impact. It was the first time Soviet experts were allowed to see a U.S. nuclear test and monitor it with their own equipment.

Meanwhile, a senior Pentagon official denied reports that the United States may have exceeded a nuclear testing limit during an experiment at the Nevada Test Site.

The test last month, said Assistant Defense Secretary Ron Lehman, "was planned to be under 150 (kilotons) and it is expected that it was under 150" kilotons, the limit set by the 1974 Nuclear Threshold Test Ban Treaty.

Two Corrtex measuring devices, a type advocated by the Reagan administration, indicated that the explosion might have been as high as 153 kilotons to 160 kilotons, and U.S. experts are trying to determine the exact force of the blast.

"We are doing some chemical analysis. But all the signs that we have are that it was under 150," Lehman said in an interview.

After Wednesday's test, the Soviet scientists quickly checked their instruments and announced they had obtained the data necessary to determine the force of the blast.

The information was gathered in a few millionths of a second before the explosion destroyed the sensor cable buried a few yards from the nuclear device. The Soviets and the Americans, who monitored the blast with U.S. technology, have agreed to release the data within a month.

The Hagfors Observatory of the Swedish Defense Research Establishment said the Semipalatinsk explosion measured between 50 and 150 kilotons.

Both sides expressed confidence the test explosion would lead to ratification of treaties.

Las Vegas Review-Journal, 6/14/94 (3B)

(Circulation: 140,494 daily; 208,789 Sunday)

Two of state's top managers in Energy say they will retire

By Keith Rogers
Review-Journal

Two of the Department of Energy's top managers in Nevada will resign this year, vacating careers they began here in the 1960s and that were closely tied to nuclear weapons testing, an agency spokesman confirmed Monday.

Nick Aquilina, manager of the Energy Department's Nevada operations office in Las Vegas since 1987, and his acting deputy manager, Linda Smith, will retire Sept. 3 and Aug. 3, respectively, said spokesman Chris West.

No replacements have been named, West said, noting that Aquilina was on government travel Monday in the United Kingdom for an annual meeting on nuclear testing, and was unavailable for comment.

The United Kingdom conducts its nuclear weapons tests at the Nevada Test Site, 65 miles northwest of Las Vegas, but testing has been on hold since September 1992, when the United States began observing a moratorium.

West said Aquilina and Smith have told Department of Energy employees in Las Vegas about their plans to retire but Aquilina has not said what he intends to do during retirement.

Smith, however, said in a telephone interview she is planning a trip to Canada and will return to Las Vegas to possibly pursue a teaching degree and get involved in politics as a public activist, not as a candidate.

"It's going to be fun not to be constrained politically," she said about her view of the future from the vantage point of a government worker, who began her career as a civilian employee at Nellis Air Force Base in 1957.

"My husband and I decided it would give us an opportunity to do a little traveling," Smith said about her immediate plans.

She said they will leave in August for Calgary, Alberta, and then take a train to Vancouver, British Columbia.

NICK AQUILINA
Announces retirement

LINDA SMITH
Will seek new career

> *"It's going to be fun not to be constrained politically."*
>
> **Linda Smith**
> *Department of Energy manager*

Smith has been acting deputy manager of the Nevada operations office since last fall, when she replaced Robert Nelson, who was assigned to the agency's Yucca Mountain Project, which is also based in Las Vegas.

In her career, Smith has served as acting associate director for geologic disposal with the Yucca Mountain Project and has worked for the Atomic Energy Commission in Las Vegas, and federal agencies in Phoenix.

Smith said she doubts that the United States will ever detonate nuclear bombs at the Nevada Test Site again. "I think it's highly unlikely," she said.

But, she said she there is potential for the test site to become a center for nuclear weapons simulation experiments, ones that would require high-tech lasers or particle-beam accelerators to explore the physics of thermonuclear reactions.

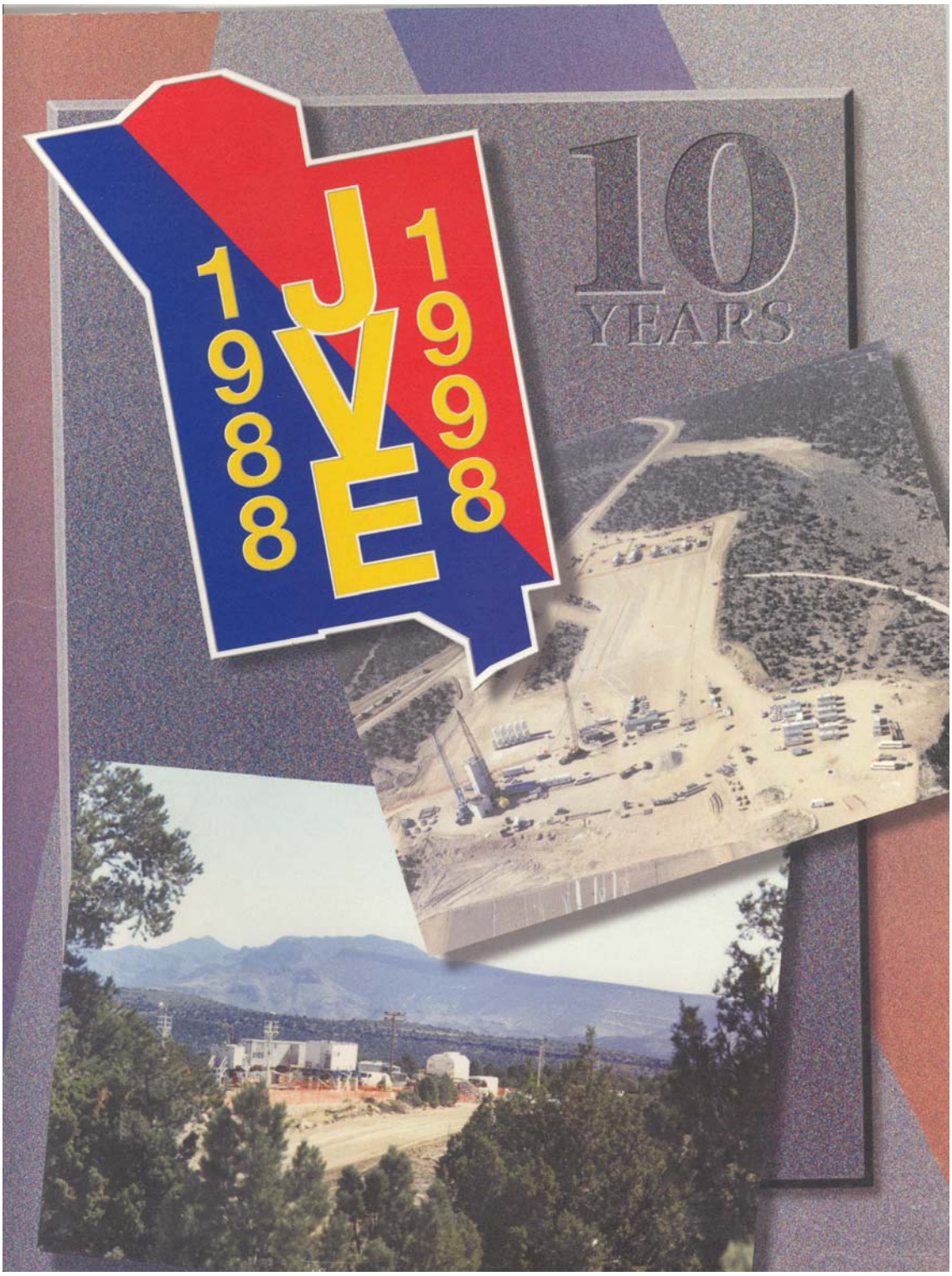
Aquilina, an Army veteran, moved to Las Vegas in 1962 to work on budgeting and administrative matters for Reynolds Electrical & Engineering Co.

He joined the Atomic Energy Commission as a program analyst in Las Vegas in 1967. After a stint with the Energy Department's Idaho operations office, from 1976 to 1987, he was appointed manager of the Nevada operations office.

Aquilina was instrumental in planning the joint treaty verification experiments between the United States and the Soviet Union in 1988.

The Department of Energy announced last month it would layoff 428 agency and contract workers in Las Vegas and at the Nevada Test Site by the end of September. Another 209 employees have volunteered to resign.

It Clips June 14, 1994)



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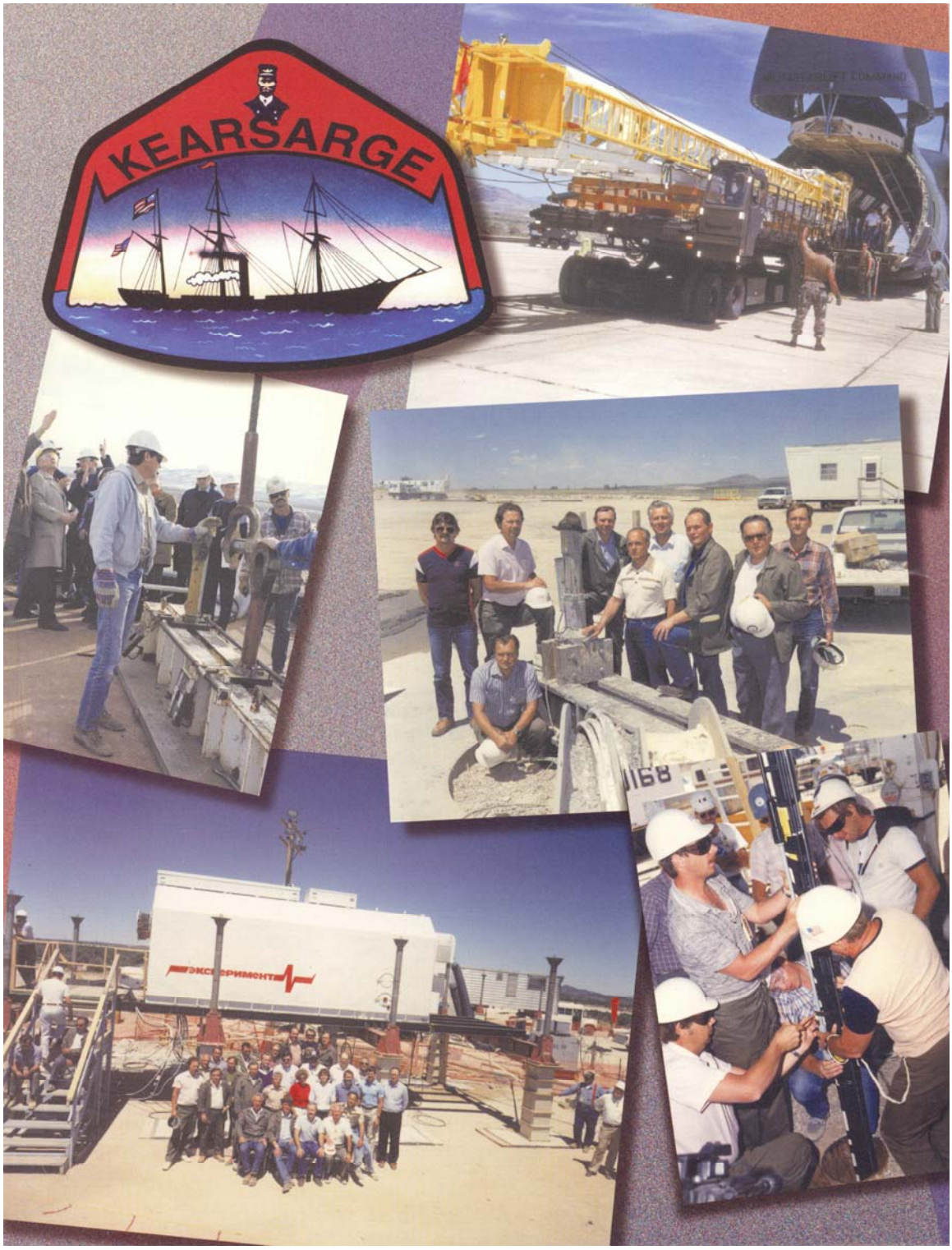

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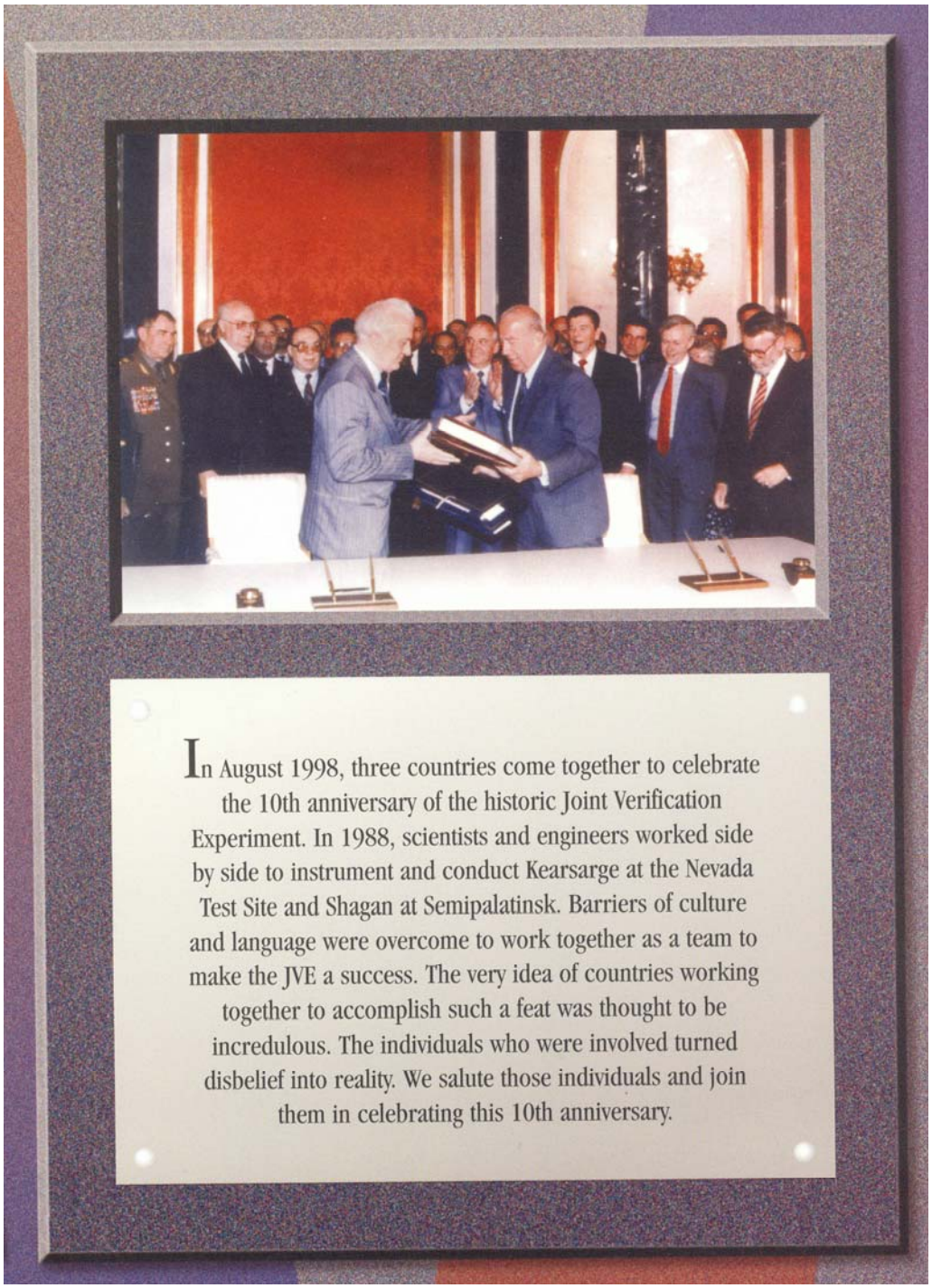
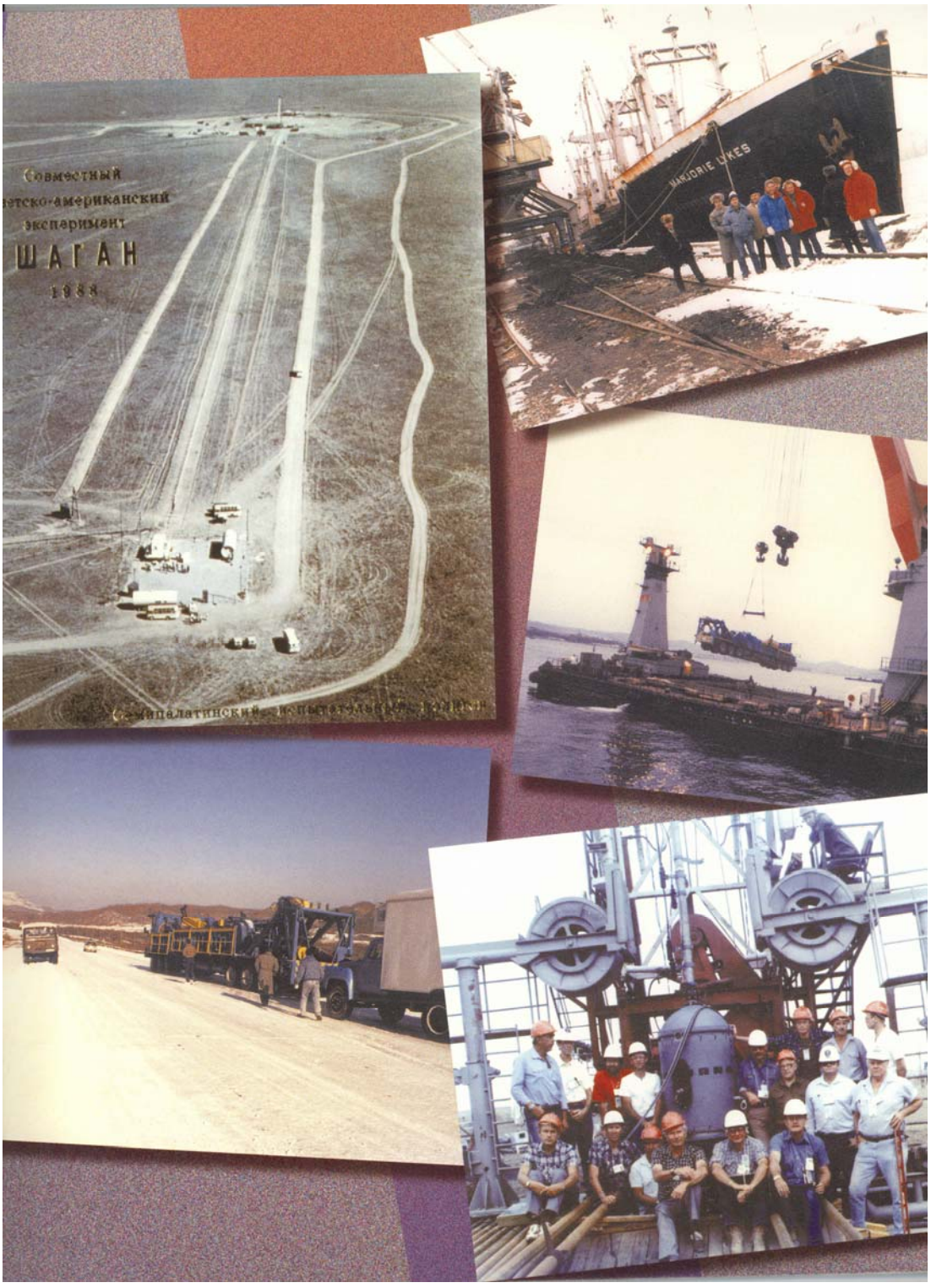


In August 1998, three countries come together to celebrate the 10th anniversary of the historic Joint Verification Experiment. In 1988, scientists and engineers worked side by side to instrument and conduct Kearsarge at the Nevada Test Site and Shagan at Semipalatinsk. Barriers of culture and language were overcome to work together as a team to make the JVE a success. The very idea of countries working together to accomplish such a feat was thought to be incredulous. The individuals who were involved turned disbelief into reality. We salute those individuals and join them in celebrating this 10th anniversary.



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