

Redacted Version
by G. R. M.
date 5/1/65

726467

P

Interview with John R. Horan, 8-18-94

Interviewers are Burton R. Baldwin and Thomas L. Baccus. Responses of the Interviewee (John Horan) are in bold.

Horan: I like the idea of using a tape recorder mainly because this way, I know I will get a copy of it to review and I can update it, etc., and you have a better record. Sometimes your thoughts are different after you hear them.

Baldwin: This is Burt Baldwin and Tom Baccus interviewing John Horan August 18, 1994. John, is it all right to tape record this interview?

Answer: Absolutely.

Baccus: We'll have an introduction. We will provide you with what the definition of HRE or Human Radiation Experiments is, provided to us by DOE Headquarters. That, and we will also provide you with an abstract of the five known experiments involving the INEL. And you have had a chance to review that, is that correct?

That's correct.

Baldwin: John, your first practical job, I think is what you called it, was an HP at Oak Ridge Cancer Research Hospital (ORINS).

Right.

Baldwin: But ultimately, you came to the INEL. When did you come to INEL?

I came in May of 1952.

Baldwin: Was that to NRF?

No, I was part of the start-up crew for the Chem Plant. I was an employee of American Cyanamid.

Baldwin: They were the construction contractor?

No, they were the first operating contractor and then Phillips took over the contract after four or five years, more like four. There were four of us as part of the first AEC Fellowship program at Vanderbilt University that were recruited by Cyanamid even before we had completed our practicum at Vanderbilt

1183175

REPOSITORY LLNL
COLLECTION _____
BOX No. _____
FOLDER _____

Interview with John Horan

and then... Because the INEL had been established just a short time before that, they did want to have some of the best trained people on their staff. It was interesting, Burt, because at that time we were brought in as "shift HPs".

Baldwin: Right, masters degree. Yeah, we've changed a lot since then.

At \$440 per month, which was ten percent above the going rate.

Baldwin: Then somewhere along the line I understand you had some tenure at NRF?

Yes.

Baldwin: Am I mistaken?

No, no, no. The job that I did at Chem Plant was basically to prepare the Health Physics Manual and to train all the employees in radiation protection. There were a lot of delays in the start-up of the plant and I wanted to have more practical experience, so I "jumped ship". I wanted some reactor experience, so that's when I went to Westinghouse, in March of '53, and, as an Industrial Hygiene Engineer.

Baldwin: And you were there for?

Well, I spent five years with them. Roughly five years. Let's see, it was in August of '57 that I became Director of Health and Safety for AEC. So that's when I started having interaction with contractors like you.

Baldwin: We've had a lot of good times together. Director of Health and Safety means for all of it, not just the Health and Safety laboratory?

I had, I don't know what the organization was at that point. I think we have changed so much.

Baldwin: Back at that time, the Director of Health and Safety was responsible for the entire National Reactor Testing Station, all health and safety matters including medical, fire protection...

The Fire Department reported to me and we did have a Health and Safety Laboratory which is now RESL, so we had responsibility for establishing the

Interview with John Horan

criteria for waste disposal, for occupational exposures, construction safety, for the facilities, interface with the state, other federal agencies, so it was extremely broad.

Baldwin: Yeah, yeah. Okay. But you had developed quite a staff to do all that.

At the time that I joined the group, we had roughly 72 people but the unfortunate part about it was that 30 of them were personnel metering clerks, and then we had about 20 firefighters, so we did not have very many nor a very high technical level of staff and one of the flaws that I had within the group was that three of my branch chiefs had come from Hanford, and so these were people who were wartime employees at Hanford. They had a lot of practical knowledge but very shallow depth from the standpoint of technical background. So, actually, the strongest group I had was the Medical group.

Baldwin: And at the site, when did Monte Hawkins come in?

I couldn't tell you, because he was originally with the contractor. Now, Monte never worked for the Health and Safety Division. I would say that Monte, and if I remember right, Monte came from the TRA area.

Baldwin: Uh huh.

And I think it was after the days of Phillips.

Baldwin: Yeah, it was INC or something.

And then he was recruited and went in. This was after we broke up the Health and Safety Division into three different divisions. We got to have a staff of 150 and it was too large and also, we were supposed to be providing a service for the contractor as well as auditing the contractor, so it was the same conflict as AEC and NRC had.

Baldwin: But that was common.

Yeah.

Baldwin: A question that I wanted to ask: When the operating contractor would report test progress, would they report to ID or Headquarters, or both?

Interview with John Horan

No, they reported to ID. No place else. It was really interesting that, if you look back at it at that time, Burt, and this is something that most people don't realize. Headquarters was not a strong entity. They did not have a large staff, did not spend much time with the field. They were interfacing with other agencies, fighting the budget battle with Congress, etc., and we were basically on our own. And to give you an example of this, at the time that the Radiation Protection Standards went into effect, some time around and I could give you the date, or the year, more specifically, and let me mention, Tom, that my weakness is in specific dates or years. To me, things fall into within the last five years or beyond five years. To be more specific, I have to go back to documentation and refresh the memory. Back around '59, new Radiation Protection Standards came out and just the fact that these were put out by the National Committee on Radiation Protection did not apply them to the federal government...yet. So the agency had to read them and review them. It took almost a year to come out and propagate them to the field, to say what we would accept and what we would not accept. Anyway, when the new criteria came out, they wanted to make two exceptions and one was the Nevada test site. The Nevada test site could not live under the criteria of exposure occupationally or off-site, so they're an exception. They wanted to make us an exception, too, because we were a reactor testing station and we'd be testing reactors to destruction. We effectively argued against that from the standpoint that we're working toward a civilian industry and we want to follow the same rules, so... People don't realize; we could have been like the Nevada test site and we didn't want it to be that way. It was at a time when we had great ignorance from the standpoint of the impact of exposure and even the capability of measuring iodine in the milk supply and as a result we had to be extremely cautious.

All contractors on the INEL were responsible to Idaho as the landlord, so they were here with our approval, etc., and they had to report to us monthly, discharges to the environment. If they had any planned test, they had to be approved by us ahead of time and we established the guidelines under which it could be done, such as, in the early days, everything was under meteorological control, so in other words, the wind had to be a certain direction, a certain velocity, predictable for a certain period of time, and, in other words, a strong lapse condition. We wanted releases such as RaLa from the Chem Plant to be over the site, the longest period of time with the greatest dilution before it got off-site. And these had to persist for a period of time and for a while, it was a four-hour period. Later on, we reduced that to two hours and basically it was so that it would blow in the same direction. We wanted to miss on-site facilities because they would be at greater risk, and

Interview with John Horan

particularly, we had to miss the Admiral's facility. This would then dilute itself before it got off-site. We did the environmental monitoring, so the contractor was responsible within his fence and we were very strict about this. Anything that went beyond his fence, we had to know about it, etc., and we monitored. We had film badges around the periphery fences, so that if there were abnormal exposures, direct radiation or fallout, we would know about it. D_{max} , in almost every case, the point of maximum deposition, was outside the fence, and this was usually one of our monitoring stations as well. We did not trust the contractor from the standpoint of, yes, they turned a report in to us, fine. We accepted it, etc., but we always have a question mark, you know, is this the full story, etc.

Baccus: Was there a preference for wind direction?

Oh, yes, sure, and let me give you an example on RaLa. The RaLa was already underway at the time I joined the ID as head of the Health and Safety group, RaLa had been going on for a couple years. Incidentally, I was part of RaLa activities when I was at Oak Ridge, so RaLa had been done originally at Oak Ridge and, since I was going to be coming to Idaho to work for Cyanamid, they saw to it that I got involved in that there, to do in plant monitoring as well as environmental monitoring and Oak Ridge crapped up the neighborhood as a result of it. They really could not do that operation there. They were just totally unequipped for it, and, in fact, one of the HPs working for me, see, we had four senior HPs and then four juniors. The four juniors were acquired, Irv Butler was one of them, acquired in Idaho. They had undergraduate degrees and then they went back to Oak Ridge for three months of field training and one, it wasn't Irv, it was another one, he got an exposure of, oh, about 750 to 800 mR exposure to the thyroid as a result of his monitoring the filters and the off-gas system.

Baldwin: Now, for application, this was in Oak Ridge?

That's in Oak Ridge, yes, not here. It was done here all the time quite well and part of it was because of the Oak Ridge experience that we've had that we decided to put real restrictions on it. The operation could not be done until after 4:30 in the day, for one thing, so a minimum number of employees was on site. Tom, are you familiar with the RaLa, what the process is?

Baccus: Somewhat.

Interview with John Horan

Okay. A green fuel element usually within 48 hours after removal from MTR would be dropped into the acid at the Chem Plant and dissolved and initially there's a big puff release of noble gases.

Baccus: Again, for clarification, when you're talking about RaLa releases here at the INEL, it was the result of the process in extracting the RaLa; it was not intentional releases for....

Oh, no, it was a routine process which occurred almost monthly and a high priority process type of thing, and so we put on restrictions. It had to be done before 5:30 at night.

Baccus: A moment ago, you said 4:30. Just wanted to clarify that.

Right. In other words we waited until 4:30 for the site to clear of people, so in other words, that was the end of the work day. So it was while people were on-site that they could not do it and then there was set-up time, etc., so usually it was 5:30 before the fuel element would be dropped. We also required that the wind would be from the southwest and it had to be a velocity of at least 10 mph and that there would be persistence of four hours initially and then we changed to two hours. No precipitation forecasted which was really working against us. It would have been better if it had washed out. You know we didn't know where washout might occur, it might be over the ANP or something of that nature, and we also required that we have teams out in the field monitoring, mobile as well as fixed teams. We also established an instrument known as the sky scanner which was one of the first scintillation detectors used, and to focus it, it was a shielded one-inch crystal, shielded so that we could aim it at the top of the complex stack so that we would know when the release had actually occurred, so we were in radio contact with the people within the Chem Plant and they would tell us, we've dropped it, and usually in a very short period of time after that there would be a noble gas and iodine release. Now to show you how we went on this and how things evolved, the result of our using the sky scanner, we found that a major part of the release, and this would be after the fact, not at the time they did it, but it would occur many days after, well, a couple of days after the actual evolution, and this would be a more continuous evolution of iodine. This was not under meteorological control and it came up they were decontaminating the tanks and cleaning up the system, so one of the things we required was, you don't clean up the system until the day of the next drop; so you allow yourself the eight-day half life decay time to minimize this type of effluent release. We did develop the use of aerial monitoring to be able to monitor

Interview with John Horan

the plume rather than having people running out in the field on back roads and that, trying to detect it with a portable instrument, and in fact, Preston Brimhall, a former Assistant Chief of Personnel Metering, he just retired from the state legislature. Preston and I were the two people normally that did this flight. Both of us were Air Force veterans and we hired Pete Hill at the local airport as our pilot. We wanted the best plane we could get and the best pilot and later on, the U.S. Public Health Service representative at the site took over doing this monitoring. They were responsible for public health and we let them do it. You talk about openness, Tom, we handled this and there were some things we could not talk about, understandably, but anything about health was open. Does that answer your question fairly well on that?

Baccus: Yes, the only other condition or question we have is that the guidance you talk about that you provided the contractor that specified what meteorological conditions and so forth for the test. Was that published in a guidance document and provided for them?

Yes, you mentioned you had a Horan letter file or you had seen it. This ought to be in there because we would put this out to the contractor, in letter form, and there should be many of these because the place we had the greatest problem with in controlling effluent release was in ANP and they were extremely independent and this type of thing, and as they operated... Yup, GE was not really the problem, but rather the Air Force itself was. And we had a Captain from the Air Force out there in charge and periodically he would call me in town and we would not allow them to start up, that the meteorology wasn't right for them to be running. He would call me and he would say, I'm sitting in my office looking out and the flag is in the right direction and it is standing straight out and exactly meeting your conditions. I'd reply, "I'm sorry but that is not the situation at 150 feet" where the effluent would be released.

Baldwin: Did the ANP program report to any field office other than Idaho?

Oh, absolutely, yeah, Cincinnati. See, AEC operated many ways. To give you an example, NRF. The Admiral had two hats. He was chief, he was a Branch Chief of Naval Reactors for AEC and he also wore another hat for the Navy, so he was able to write letters to himself and get things done. And the Air Force had a man similar to that who was in AEC responsible for aircraft nuclear propulsion and he was an Air Force officer and, etc. Okay, so they were under the Cincinnati office...

Interview with John Horan

Baldwin: But you had the landlord function for those people.

Yes, absolutely, yeah.

Baldwin: Then within the ANP program, there may have been different exposure limits than for the ID.

No, we set up the criteria for the site. I did and it was uniform for all contractors.

Baldwin: I did the operational exposures for those people.

Oh, they could set up lower exposure than our criteria for their workers. They could not change the upper limits.

Baldwin: Now, part of you governed the outside of their fence boundary, you governed that.

Burt, to show you how interesting this got, you know. Now here, okay, we're allowed 500 mR exposure off-site. This was the criteria at one time. Okay, that's for the INEL, for the year. GE wanted us to give them the full share. We said that no contractor could plan on using the total exposure. And we said, you're allowed 10 percent. How come? And we said, we allow everybody just ten percent and if you start having problems with that, you can't operate. So our job, that to us was a limit. We could not exceed that and so we were applying as much restriction as we could considering the early state of dose calculation and the inaccuracies of environmental monitoring.

Baldwin: I remember the ID Orders that did that. I can remember reading it and thinking, that's smart!

And incidentally, this is another document that's important. There are ID Directives. They were called Health and Safety Bulletins put out over the ID Manager's signature. It means a DOE Order today, but we had our own system and they were numbered. We would put them out on fire protection, construction safety, anything of this nature including occupational and environmental dose limits.

Baldwin: Bulletins, safety bulletins, I think they were called.

Interview with John Horan

Let me mention something else that you ought to know because there's another document, we called it the Green Bible (IDO Health and Safety Division Design Criteria Manual IDO-12008, 1959, and IDO-12044, 1965), and this had all of our rules for the site, and, initially, we were a construction site and that was our major concern. As far as the public was concerned, the NRTS was a single entity and they were not aware that General Electric had its own private set-up or NRF, etc. We were the ones that interfaced with the public and so we issued the press releases and this is the reason: we said, as the landlord, we have to know what's going up the stacks and also we had shutdown authority and which, in fact, Sam Levine, the manager of GE, one time I was in his office and he said, "By God, you better not ever shut us down", and I said, "Sam, you give us a reason to do it, and you will see it'll be done." To him, hey, you're interfering with a national program here and this is important work. Okay, the Green Bible, let me talk about that. That was an inch thick book. Denver Dierks was the one who was responsible for starting it because it was all construction, and earthquake requirements originally, then we put in fire protection. It had all types of loading for slings, angles, this sort of thing. And then later on, about, well, let's see, about '59 I started introducing industrial hygiene because we hired the first industrial hygienist and then about '60, and this is where Burt will be interested. Lyle Slagle, I brought Lyle in. To do the health physics so that this manual which had the force of a an AEC Directive would include everything. See, the interesting part was the Health Physics developed last, from the standpoint of THE document. At that time, Tom, the state of Idaho, see, we were not required to follow Idaho rules in any aspect. What an AEC group would try to do, in any location, would be to conform to the best standards within the state, so we looked at construction criteria for the state of Idaho, particularly earthquake, and we found they were nonexistent and yet we had this big pathway through the state of Idaho of an earthquake zone. So we adopted the criteria from the state of California and right from the beginning, this facility out there was required to conform to that higher type of earthquake protection.

Baccus: A point of note here. We had turned the tape over and I just wanted to clarify that, during the process of changing the tape, we did not talk about any new information.)

Baccus: I have a question about the Green Bible. Was there an official name for this document?

Yeah, and I've no idea.

Interview with John Horan

Baldwin: We called it the Green Bible so long I've forgotten what its real name was.

That communicated something to people, you know, that, hey, this is something you follow. It had an IDO number to it and I'm sure... Standards, uh.

Baldwin: You said it was a 1959-1960 time period that this was...

Oh, this was originally started even earlier than that. I would say Denver Dierks most likely started this around '52 or '53 on construction and then I hired an industrial hygienist, John Collins, in '58 and prior to that time, let's see, around '58 is when I brought Dick Beers in as a fire protection engineer from the TRA and he covered that part. Then the next year I brought in the HP, Lyle Slagle, in around late '59 or early '60, most likely '60, and that was his job. And so this thing went through many editions and changes but it was about an inch thick and has the spiral bindings.

Baldwin: I had a copy of it when I was at TAN.

Safety Regulations of Idaho Operations Office or something like that, so Idaho Operations Office is in it and it is an IDO document which is the terminology we used at that time.

Baldwin: You may find the reference even in the current Health and Safety Operations Design criteria as a prior issue.

Okay, Design Criteria was in it, too. Yeah, it had all that in the title.

Baldwin: What we now call Design Criteria is that thinner book that's just an excerpt from it.

The series would be IDO 12000 something. By the way, I've been trying to find, somebody should have a sequential listing of the 12000 (12-22-94, Eddie Chew now has the sequential listing of the IDO-12000 series), 13000, 14000, 15000 series documents and this was one reason; I saw one of your things over here, Nuclear Science Abstracts, that's the thing that contains all of these documents, every time any document was put out, a copy was sent to Oak Ridge Technical and Information Center to go into the Nuclear Science Abstracts, and one of the things I searched for a couple years ago was this Health and Safety handbook for the Chem Plant that I did in the fall of '52 and I was able to find it through that. What's the manager's name at the Tech Library? Brent

Interview with John Horan

Jacobson. He sent to Oak Ridge and got a microfiche out of that and had two copies printed, one for me and one for his files.

I mentioned about meteorological controls. Let me mention one thing we did one time that I found very interesting at the Chem Plant, after we had a couple years experience. One day, even though all of the conditions were being met that we had established, we still had to verbally authorize the start of the test, so ID did that and my group specifically. We had our own weather bureau group and they were the ones that were the determinants of what the conditions were and Dr. Norm Isplitzer one day contacted me and he said, John, we don't have the ghost of a chance of going today, we've got a capping inversion and in fact it's below the stack. I don't know who it was, it might have been George Wehmann that made the comment, "Hey, that's ideal." Nobody will ever find it and the wind was from the northeast so we had an inversion; we didn't have the strong lapse condition we wanted and the wind was from the wrong direction as well and we decided to talk it over but there was an urgency to make a shipment. I don't know if it was a larger inventory that they were after at the time but the truck was already at the plant, waiting, and there was pressure on and it had been delayed for a time. We authorized them to go ahead. The weather bureau kept track of when the inversion lifted, etc., they identified down by the Big Southern Butte as where that puff would be at the time and we sent people down there and sampled sagebrush and found very dilute activity. We authorized them to go ahead under those conditions because we're away from inhabited things and there won't be a problem, so we did make exceptions when we had a basis...

Baldwin: That's a little unusual when that capping inversion is below the stack.

Yeah, yeah.

Baldwin: Was there a requirement to be informed and consent to exposure for the environmental monitors that went out, in other words, the HPs that went out to check the sagebrush?

No, no. That's part of their job.

Baldwin: That's our understanding of how that was as well.

These are trained radiation workers. These were the same people, it turned out, that were involved in the CERT tests. I should go into the procedure on

Interview with John Horan

the CERT test for you because I think I'm the best source of information on that. One of the requirements was getting approval from Germantown (i.e., AEC-HQ) to do this type of experimentation. The experimentation was, initially, just to study the deposition velocity, in other words, the uptake, on the sagebrush or on the grass, of the iodine, the uptake by the cow, and the milk was the end point we were going to do initially. When we decided to extend that, and by the way, we did this with Biology and Medicine money, out of Washington Headquarters. So you know, you talk about approval; it was even their money. The thing that they came back to us was that we could not use contractor employees to do the milk uptake studies, that the contract did not protect them while federal employees were covered in the event of liability. Well, we had planned originally and had identified already those people on my staff who would be involved in it and most of them were from the old Site Survey Branch: [REDACTED] those two come to mind right away. Oh, and [REDACTED] in the group. One reason we did this was these are the most knowledgeable people, about radiation and its health effects that were on the desert. We had people from Phillips Petroleum Company that volunteered to do it, too. We were planning to include them, but the Chief Counsel's office contacted Washington. The General Counsel in Headquarters came back and said, "No, you can only use the federal employees." The other thing that's very important for your group is the fact that they told us we were the first field office to come in and raise this question and to seek approval. And that would have been, I suspect, in late '62.

Baccus: Yeah, so this NRTS approval was for the CERT test.

Yes, absolutely.

Baccus: You mention [REDACTED]

No [REDACTED]

Baccus: Oh, excuse me; [REDACTED] was [REDACTED] volunteers?

Yes, yes.

Baccus: Did [REDACTED] type of health physics background?

[REDACTED] In other words, group training, etc.

Interview with John Horan

Baccus: Well, did [REDACTED] some sort of briefing or training process that could [REDACTED]...

Oh, absolutely. And the man who did this, well, first of all, there's Bill Gammel was the supervisor and the man who used the consent form and checked out on the voluntary consent was Dr. George Voelz.

Baccus: That was the other question, about consent forms, that they were signed and...

Yep. And I heard you had a copy of the consent form?

Baccus: Well, we're not sure, uh...

A single sheet of paper... I've got a blank in my home files, and let me get some coffee, too.

(Baccus: A break was taken at this point and no additional information was discussed during the break.)

Baccus: What I have here is a consent form that we did locate and I'd like you, John, to take a look at it and indicate whether it was the same used for the CERT test.

Very familiar. The unfortunate part is I notice, and this is in retrospect, it doesn't have any form number or date on it, but I came across a copy of this in my own files about two years ago while I was doing a study on the occupational exposure history of the site. The GAO came along, Senator Glenn had commissioned them to look into the abusive overexposure to DOE employees. Since I had most likely more knowledge about dosimetry at that time I was deflected from my own assignment to work with GAO which lasted over a six-month period on a part-time basis. They had no knowledge that there was a voluntary consent form and so I made a search through some of my files. Like John Byrom, I never throw a piece of paper away. If nothing else, I can use it as scrap paper on the back. I did come across a copy of this and I know I have it in my GAO file at home. I haven't looked at the form since then but I'm certain that this is identical. But I want to read it because some of the things that may be in the descriptive paragraph may refresh my memory in some other things.

Interview with John Horan

Baccus: Something that might help you is a point to note. This particular form that you have here was provided to us by Claude Sill.

Sill. Yeah, Claude was very involved in this work and I would say he, myself, and somebody from our Chief Counsel's office were the three people involved in developing this form. One of my major contributions was that it be limited to just one sheet of paper, one side of a sheet of paper. I wanted it to be simple and include everything. One of the things that we emphasized in particular, and this is before I read this to see if it's in here, one of the things that Dr. Voelz in his personal interview with everyone of the people before they signed this form, they were told that at any time they so desired, if they got uneasy about this work, they could withdraw, period, no questions asked. So there was no pressure exerted on people to be part of this. In fact, we had more volunteers than we could ever utilize, among our own group as well as contractor people. The one thing that bothered me was that in no way did I want this to appear to be a requirement of the job or that there were any special benefits, etc., from doing something like this. Okay. And notice a mention is made of a review committee. There was an independent review committee established. Dr. Voelz was the one who was responsible for that and, incidentally, he's a prince of a person, fantastic scientist as well as clinician, and he was the one, again, you know, we wanted a medical doctor to be involved, we did have another one on the staff at the time but we wanted the chief medical officer to be involved, Dr. Butz, because he was relating to people from the community. I know we had one medical doctor from Idaho Falls involved. I'm pretty sure we had somebody from Idaho State University in it. As I recall, and this is where I'm a bit vague, there were five people involved and basically they were an advisory group to look at each test protocol that we developed and from their professional and, let us say civilian, standpoint, that this is a valid approach, that it is ethically sound, this type of thing, was their review.

Baccus: Let me ask you, Did they provide a written response on that review?

I don't know how that part was handled. See, my main job was as the administrator of the group to see that programs were being done properly, that we were doing things that were worthwhile, based on our budget, and technically sound, and once I got this through the approval of headquarters, then to me it was something to be operational and made use of. But there was an advisory group and I did not keep my hand in all these things, so Dr. Voelz was responsible for that group and handled it from there on up. I don't believe that they were in existence very long. I suspect that they were not involved

Interview with John Horan

when the later tracer studies were done by people in the Analytical Chemistry Group, Claude Sill's group, to study the capsules that they used for passage through the body, you know, whole body counting type of thing. They may have been but I don't recall that at this point. Oh, yeah, there's the condition of employment, right. I think from talking to the people that were involved, none of them had any second thoughts, any problems with it along the way. (The predicted dose to the thyroid and the actual dose was discussed with each individual before and after the tests.) We had some people that went on to very much higher levels of government assignment, etc., like Dr. John Zimbrick at Battelle, head of their laboratory up there, past president of the Radiation Research Society. Delbert Bunch was another one. I know Delbert was part of the official NRC group that went to the Vienna, Austria "political" meeting where the Russians presented their first data on Chernobyl and the reason I say "political" is that there wasn't a single medical doctor or health physicist on the U.S. delegation, but six months later we had a technical meeting at Salzburg.

Baccus: And these individuals were volunteers, put on that CERT program?

Yeah. The CERT program is the one that I had the most involvement in.

Baldwin: Did the CERT report identify the volunteers?

Sure. Yup. By initial. You see, we've always observed the custom that anybody involved with a radiation accident or this type of test, that their names would not be readily available. If I remember right, we used two initials which isn't very much concealment. Zimbrick by the way, but I believe he was later; he was in the later series of the CERT, uh, and the tracer studies, the uptake, inhalation and ingestion studies were early. I think your best man to know about the early tests would be Clyde Hawley.

Baldwin: Was he also a volunteer?

Not to my knowledge.

Baldwin: So were Zimbrick and Bunch and [REDACTED] involved more?

I would not put Bunch as one of the volunteers, nor Zimbrick. These were the senior people responsible for the test so in other words, the first was Clyde Hawley and I think Bunch was second and Zimbrick was third. That's the way they went.

Interview with John Horan

Baldwin: I think Clyde's in Salmon now, isn't he?

That's what I heard. Yeah.

Baccus: Do you have any idea what happened to the signed consent forms?

No. The, uh, I would hope if I were to identify three people that you should talk to, one would be John X. Combo, Chief Counsel of Idaho Operations, he should be very familiar with the consent form and our going to Headquarters about it; the other one would be Dr. George Voelz, Los Alamos. Combo, by the way, is in Idaho Falls. And the other one is Claude Sill.

Baldwin: Who is still working on the desert.

Baccus: Claude's going to be in this afternoon.

Yeah, tell the SOB I said hello.

Baldwin: All right.

No. Claude was, uh, he came from the Bureau of Mines in '51, to the site. I believe it was '51 and I came across something just two weeks ago about his plutonium monitoring van.

Baldwin: Yeah, Claude's a character but he's a good scientist, too.

Yeah. Let me tell you, as part of your questions, ask him if it's true that he is the world's greatest analytical chemist. He has a six-foot tie that testifies to it, given him by the National Analytical Chemistry group.

Baldwin: The thrust of this, I think, John, was to discuss the approval to do a test and the consent for the volunteers, and to establish that they were separate, and I think you've clearly shown that it was a separate process to gain volunteers and their consent.

Now, Burt, let me take you a little further. If anything comes out of this Headquarters investigation, it should be in the identification that the place where the protocol in effect at the time was handled classically, was in Idaho.

Baccus: During the CERT Test.

Interview with John Horan

Right, yeah.

Baccus: Now to your knowledge, any HRE efforts that took place at other facilities across the country prior to the CERT test did not have the same approval process as was developed for the CERT test.

That I believe. Now the flaw with my making that type of statement is that I have the feedback from two people in two different organizations at Headquarters, you know, they are segmented, etc., and they were the ones that told me that no one else had ever come in with a request for approval.

Baccus: Do you happen to recall the names of those individuals?

Yeah. The legal I do not know but that's where Jack Combo could help you because, uh, let me go through the history of this. Would that help you? I held a staff meeting. See, my organization was a strange setup.

(Nothing further on that tape. Starting on a new tape labeled "EG&G-2".)

Baccus: No discussion was held during the process of changing the previous tape.

Agreed, right. Okay, let me start out with the process then. The division that I was responsible for, I and a secretary were the only two members of the division in Idaho Falls. The manager wanted me at his beck and call even though all the operations and activities of my group was out in the desert, so I had a real communication problem and, as a result, I held weekly staff meetings on every Wednesday at 10:00 at Central Facility Area. (My secretary attended and the formal summary of each staff meeting should be in the Green Copy in the Horan files.) This was in that brick building, the commanding officer's bungalow. At these meetings which were attended by not only my people, but the weather bureau, U.S. Geological Service, and the Public Health Service, and let me mention the Public Health Service thing because I think that's important. As a contributing group to Environmental Safety at the site, when I joined the group in August of '57, a Jack Nelson, a uniformed officer of the Public Health Service out of their Washington headquarters reporting to a fellow by the name of E. E. Anderson who was already with the organization. He was basically, a very superb, technically oriented individual in the nuclear field as well as in all aspects of sanitation, waste disposal, environmental monitoring and internal dosimetry. He was actually the most technically competent environmentalist that I had available, more

Interview with John Horan

qualified than anybody else I had on my staff, so I wanted to make full use of him and he was privy to everything that went on. Within the organization, he was looked upon as my deputy and he was with the group for a couple years after I joined the division. The main reason, I suspect, that he left was that I was beginning to search for an official deputy and I think that the Public Health Service was afraid that I was going to make him a better offer. I had actually sought approval from them to allow him to make management decisions involving the ANP project and that got turned down. I found that I was being stretched too thin and I needed to have an alter ego. And by the way, the deputy that I recruited was Dr. Wayne Bills, who came in roughly in '59. Okay. The Public Health Service was thoroughly involved, however, extremely open and well received by my branch chiefs and the contractors.

Baldwin: Did Nelson have a security clearance?

Oh, absolutely. All of these people did, not that that was important, Burt, because many of the reports... All of our staff meetings were unclassified and anything pertaining to health protection did not have a classification. I know of one operation that I was not privy to, because of my clearance not being high enough. That didn't matter. I'm not going to mention what it was either. So at the staff meeting, I always went around the table and everybody had at least five minutes, maybe ten, to discuss things, and it was basically what we had accomplished and what we were going to do and problems. These were not problem-solving sessions but problem identification. One of the things we constantly had in front of us was the fact that we were testing to destruction. We were also testing component and full systems that could fail, and things were brought to Idaho, particularly by Argonne National Laboratory, that they could not operate at other locations. So this was the purpose of the NRTS, so very heavy emphasis was on emergency planning and emergency response capabilities.

We tried to learn from lessons of others and the thing that impressed us the most was Windscale (around 1956). This concerned a fire in a graphite reactor which released large quantities of iodine to the environment. When the SL-1 accident occurred, we were looking for a major iodine release and we did not have it, so something was different from our knowledge about the release of iodine to the environment, and its uptake was not very well known. After the SL-1, we had many visitors from throughout the United States and foreign countries and one of them was a Lord Plowden who was in charge of the Atomic Energy Authority in the United Kingdom and he was so impressed with Idaho that he invited the manager, Alan Johnson, to come to England and visit their

Interview with John Horan

facilities and have discussions with their people and bring one other person with, and I was fortunate enough to be selected as that other person.

In talking to the people from Windscale, one of the key things I talked to them about was the uptake of iodine 131, and there was a fellow by the name of Mr. Chamberlain who was their expert and had done a lot of studies and I got George Wehmann whom I had recruited from our Weather Bureau group to come into our group to make the calculations for us on off-site dose from releases. I got George in contact with Chamberlain and it was very interesting but there was a major difference between the British and ourselves. They are at sea level, in other words, Windscale was on the Irish Sea where the people eat a lot of fish and they had naturally high iodine uptake. Their land was quite different from ours, not only being at sea level but it was truly grassland with heavy rainfall and fantastic pastures. On the other hand in Idaho, our situation, we could not transfer their technology directly. We have sagebrush desert, very low rainfall, an iodine deficient area. So in our emergency preparation, we'd always identify what needs do we have, where should we be focusing more attention, and at one of these meetings in '62 (I seem to recall it was around summer, but I'm not sure about that). It was mentioned that we ought to do more testing, more releases or more studies of iodine and the environment. Also, about this time, there was the RaLa operation shutting down. This particular period of time was interesting because we were getting into SNAPTRAN, two destructive tests of space reactors. SPERT was going into excursions about every six months, and we wanted to have a better handle on off-site dose.

One of the calculations that I had Jack Nelson do (a Public Health Service representative) before every time we had a release on site, we came up with an expected dose. In other words, what's our best calculation and what I had Jack do for me one time was, I wanted to know the limits. Maximize it and minimize it and where do we end up, and what's the difference, and this was for a RaLa release. There was a factor of 10^6 difference between the two calculations and that was the state of our knowledge. Well, if it is on the minimum side, no problem, but if it was anywhere near the maximum side, we exceeded the off-site dose by a factor of 10 to 100 and that was with all the conservatisms built in. So that's why we decided we should get back to doing some more basic testing, field release tests had been done on the site before this. Operation Weiner Roast which was done roughly in '55 or '56 by my predecessor, Dr. G. Victor Beard. We had also had Convair come out to the site to do testing for the aircraft nuclear propulsion program. There was a follow-up on Weiner Roast that basically simulated the crash of a nuclear

Interview with John Horan

powered aircraft. The name of the man who was in charge of that was a John Gallamore. I think John is still around. Also, the Weather Bureau group was very interested in releasing chemical tracers and they had done a number of studies like that, so between Bill Gammel, Norm Isplitzer, George Wehmann, the pitch was made that we ought to get back to that type of program. So the next Monday at the HQ staff meeting in Idaho Falls, I brought it up and mentioned that this was something we were considering and somehow it was mentioned that I should be involved with Legal on it. I was always very close to Legal in our relationships, etc. In fact, I usually had a lawyer assigned to the group, so we threw the trial balloon into HQ at two levels, myself to the Division of Biology and Medicine and I did it initially to Dr. Beard who had been my predecessor and who was then the Chief of the Radiation Protection Branch, and Combo did it to the General Counsel, and both came back with the Nuremburg code which I had never heard of. I'd heard of the Nuremburg trials and I knew this was why the key Nazis were hanged, because of human experimentation. Out of that trial was developed a code, so with that, through the Legal Office, we got a copy of the code. I had copies made up and sent out to my branch chiefs, and said this is the protocol that we have to follow and we followed it verbatim, as the Navy would say, "verbatim compliance", and the one-page consent form was one product of it and we sent it back to HQ after it was developed.

Baccus: That being the consent form.

The consent form, thank you. Um, and this is where, as part of the conversation I was told, one restriction was, and this is where there should be documentation in the legal files of Jack Combo, that we could not use the AEC...

Baldwin: Or other.

Contractor employees. That they had to be federal employees because they would be protected if there was any reason, harm or alleged harm in the future, then that could be handled but not under the AEC contract. So that was done and then it was the following year that the first experiment was done. We did not have a an instrumented grid developed so we used a crested wheat grass area that we had put in south of the highway and south of SL-1 and, basically, it was "can we do this type of field release", showing how we can do it, and work out the bugs. We were particularly concerned about the exposure to the people at the iodine generators, how much they could receive and whether they would have an inhalation problem, and then also this gave us time to develop the dairy farm, and the location of the farm is D_{max} (the point

Interview with John Horan

of maximum deposition under strong lapse weather conditions) to the northeast of the Chem Plant.

Baldwin: Oh, oh. Okay. I always wondered at the location.

Well, for a number of reasons. We wanted it near the river for water and the ideal thing was that we wanted to be able to release from the Chem Plant stack because, see, what we were doing in the field of having generators along a straight line was artificial and we wanted to correlate our experimental set-up. We were trying to do good science, with an actual release coming down and hitting that area and seeing how good it was with test conditions.

Baccus: Was there ever any intentional release from the stack?

I believe so. I believe there was at least one and maybe two. Now, what do we mean by "intentional" release? I don't know how the arrangements were made for this type of thing or whether it was a routine cleanup but we asked them to wait until the wind direction and the lapse conditions were appropriate so that what they were normally doing would hit this dairy farm area. So this is a detail I do not know. I believe Clyde Hawley would be the one that would know.

Baccus: So that, you believed to have occurred during the time of Clyde Hawley?

Yes. Yeah, during the first part of the field tests, because it was an early thing to know, how good is what we're doing, can it be related, and we did a number of the tests twice for reproducibility, to see how this could be, and, see, with the crested wheat grass, that was an artificial environment and that was why we wanted a typical Idaho pasture, so we hired a farmer. In fact, I can still remember seeing the picture in the INEL News, with his arms inside his, uh...

Baldwin: Bib overalls?

Yeah, bib overalls. Then we needed to get cows and we got the best educated cows in America.

Baldwin: Where did they come from?

Bozeman, Montana, Montana State University.

Interview with John Horan

Baldwin: Bozeman, oh, yeah, the university.

Talk about pedigreed! And we had the two professors of animal husbandry come down from up there, and went through with them what we were doing and we told them that the cows would not be harmed as a result of this type of testing.

Baccus: Do you know what happened to the cows after the tests?

Oh, sure, they went back. See, we just had them for the summer. Well, most of what we did was summer testing. There was one release as I recall either in late November or early December to do the winter type pasture and I'm not sure if we ever did anything to try to determine the uptake on stored feed, you know, because of the winter time feeding of cows.

Baldwin: Yeah, they're fed the stored feed.

Baccus: Before they went back to Bozeman, they were cleaned up; sufficient time for all the iodine to be flushed from their bodies as determined by milk analysis.

Yeah, absolutely. That was our responsibility.

Baccus: This was a specific question by the Shoshone Bannock tribe, as to what happened to them.

Oh, yeah, were you involved in that query?

Baccus: I was not; Richard Dickson was. But one of the questions that came up was they wanted to know what happened to the cows.

Oh, yeah.

Baccus: And we weren't able to answer that, at the time.

Yeah, I know Brett Hayball very well, who is the main liaison with the tribe. In fact, he was very concerned from the standpoint that the Bureau of Indian Affairs might have been in collusion with the INEL to have tested Native Americans.

Baldwin: Oh, I see.

Interview with John Horan

Baccus: Yeah, we're specifically making sure we look for references so that we can make sure we can go back to Hayball and...

Yeah. Well, I'll mention it to Brett the next time I see him as well.

Baccus: So we can alleviate their concerns.

I don't know for how many years we conducted those tests. You see, this thing became a routine and we were doing it basically each summer and we specifically had it funded out of Division of Biology and Medicine. Separate fund, it was not our operating budget, and I had a little problem with some of my staff members. "Why do you go through all this paperwork? We'd do this anyway." And I said, "I want additional funding coming in, I want people to own part of the project and I want them to be reading reports and this type of thing." Something else you need to be aware of: a press release was put out, all along during this period of time, before any of these tests, and in other words, in some of them, and I'm talking destructive tests, too, like SNAPTRAN at the north end, because we identified in the press release that there'd be low flying aircraft because we would have a monitoring aircraft up and at one time we had EG&G come up from Las Vegas. The aerial flight thing was very interesting because on the SNAPTRAN destructive test on the surface (air release) the EG&G plane could not locate the radioactive cloud and we radioed to them and told them where the cloud was located.

Baldwin: Yeah, yeah, they were too fast.

But there should be a collection of press releases, okay, and one went out ahead of time to tell people they may see unusual activity in the area. Also, we were sampling milk off-site. And we went to the cheese processing plant and we went to a creamery and we got bulk samples of milk but we also got individual milk from farms where we made the rounds on cow farms in the Montevue area to the northeast. In fact, George Ball was one of those key people that did that type of thing.

But the bad part about your archeology work is that this is an aged population you're dealing with in trying to reconstruct early site history.

Baldwin: Yeah.

Don Reid never got interviewed...

PRIVACY ACT MATERIAL REMOVED

Interview with John Horan

Baldwin: Who, oh, Don Reid, oh yeah .

Before he died, and he was a wealth of knowledge.

Baldwin: Oh, yes.

He was in the start-up crew at the Chem Plant. Also cleanup.

Baldwin: There's not too many people left that have that kind of knowledge about these facilities.

Baccus: To regress back to what you said, this was done every summer, and every summer the cows were obtained from...

A group of cows, different ones, they were different cows, usually.

Baccus: They did always come from the university?

Yeah, we put out bids for contacts, you know, and approached different people and, I think Clyde was a graduate from Bozeman, but I'm not sure. But anyway, that contact was made and, boy, they wanted to be involved. When we approached local people, they said, "Oh, well, we don't understand this type of thing so we won't be involved." We sent people up there afterwards to report to the university, you know, a seminar on our studies, what we were doing and what the results were, and to thank them. But go ahead.

Baccus: The farmer you mentioned, was he ever involved with any of these experiments?

No. No involvement there. His job was to irrigate and jobs like that, he said it was the softest job he ever had, to make this as typical of an Idaho pasture as he could. So in other words, he identified the grasses that we seeded out there and he did the irrigation and this type of thing, but he was not on the farm during releases.

Baccus: He was always?

It's in the INEL News and I've got a photograph of him in my basement in one of my collections. But I can picture it today with him on the front page in his bib overalls. The article told about the CERT farm and the tests to be performed.

Interview with John Horan

Baldwin: Yeah, yeah.

If you have talked to Boyd Mortenson or Clyde Hawley, I'm sure they would remember that picture and remember him. That should not be hard to track down and we had a lot of photographs taken of this activity and I remember one that Clyde took great joy in because in one of the studies we did, an inhalation studies out there, Clyde, in showing it at a later presentation, showed a picture of an HP going to work and he was dressed in Anti-C clothing with a folding chair, going out to sit in the field.

Baccus: Speaking of that, I'd like to ask you a specific question here. I was talking to an individual who had been in one of your university classes here and he had indicated that you were telling some of the history of some of the tests and that you had mentioned that you had or saw a picture of an HP who was doing part of an inhalation study with a folding chair, as a matter of fact.

Same thing.

Baccus: But he had referenced the failed fuel testing that was done north of CPP and I wanted to get that clarified because we won't have any indication that...

No, definitely not, no, and this is always the problem when you're presenting something to people and in fact, in none of my classes did I ever mention the fuel cutting facility and that problem, so that never got into my teaching. In none of the other field release tests, neither Weiner Roast, Convair, SPERT or SNAPTRAN were any personnel allowed on the test grid at the time of the release. One of the test points in the control room was the requirement that the downwind grid was free of all personnel.

Baccus: Yeah, I wanted to clarify that because he had made a statement to me.

Yeah, right.

Baldwin: There was a time when we fed green chop that had been exposed to the iodine in the atmosphere, wasn't there?

This I don't...

Interview with John Horan

Baldwin: Yeah, yeah. I was wondering how he managed to cut and handle that contaminated alfalfa but I will ask someone else about that.

Yeah, maybe I can help you there. When we built what we called the Health and Safety Laboratory, CFA-690, RESL now, and that was built in '60 and...

Baldwin: I remember being impressed with all the perchloric acid hoods.

I mean, how else does Claude Sill operate?

Baldwin: Like salt on your meat, isn't it?

Yeah, everything had to be digested. By the way, one very interesting time that I had with Claude Sill; I forced him to buy his first 256 channel analyzer.

Baldwin: Really!

Okay, I was familiar with it and I had seen it in use elsewhere. "We don't need to spend that much money." Claude is as tight as they come, from the standpoint that he won't have something unless he really needs it. I never denied Claude anything and, in fact...

Baldwin: Yeah, he never came to you for anything unless he needed it.

Later, we got into 400 channels and were buying them almost by the dozen. We did have in the H&S building an ecology group, Site Survey which did the physical monitoring; Ecology did the biological monitoring. We did have a plant growth room, as part of their facility, and they used to raise grasses, etc., and in fact some of the tests that were done later in the year when we had poor pasture, they would have one foot-square plots of grass that they had raised, and the whole plot would be taken up and put in the field and this would be their sample. You know, it's real easy. Clip samples and put them into the Marinelli jar counting them. So there was a plant growth room and an animal room that they had. This is a little aside but I think it shows how we operated. Their great pastime (this was Ecology) was they had a power wagon (Dodge truck) equipped with a seat, a bucket seat with a safety belt, on the right hand fender, and they'd go out in the sagebrush with a 12-gauge shotgun and collect jackrabbits, remove the thyroid and count the thyroid to monitor iodine-131. I joined the group and I knew they had been doing this for years, and they were getting good data, etc., but I said what does it cost, how much

Interview with John Horan

does it cost for each bit of data that you have? No idea. Yeah, okay. Well, I want to find out. What other alternatives do we have? Well, at this time we had a Dr. Zola Fineman that was head of the group and Zola came in and he said down at Dugway, Utah, we used to use sagebrush for sampling, we've got a lot of it out here. So they went to sagebrush sampling and did that. Sagebrush sampling cost us a dollar to get the results. The jackrabbit thyroid was \$39. Somehow we changed over to sagebrush sampling.

Baldwin: Somehow, yeah, somehow. The right questions.

Baccus: You referenced earlier the Weiner Roast? Can you elaborate on that?

Sure, um, and you will find this listed in Eddy Chew's historic report. By the way, Eddy did a fantastic job. Were you part of that?

Baldwin: No.

(Baldwin: We've turned the tape over to side B, EG&G tape 2, and we are continuing with John Horan's response to the question about the nature of the Weiner Roast project.)

Baccus: Again, I will make a note here. We were just having a discussion as to whether John would like to continue on or if he would like to stop for lunch and continue after lunch.

Okay, why don't we go on maybe half an hour.

Baccus: Okay.

If that suits your schedule...

Baccus: That's fine.

When do you have Claude coming in?

Baldwin: Two o'clock.

Because I find, for one thing, that a couple of hours or something like that is both more productive when the mind is fresh in this type of thing than to try to carry on too long. Let me mention on this public relations thing that IDO at the time, had a policy at their Public Information office under Mack

Interview with John Horan

Corbett that every press release they put out in the course of the year was numbered. A very interesting aspect on this was that I have a collection at my home of all of the press releases on SL-1. Now, SL-1 occurred on January 3, 1961, so it was the start of the year and there were over 140 press releases on SL-1 that one year, and then this continued another six months into the next year. I always tried to save those things that related to my activities, so any press release that went out about a planned test and we were very open with the public on this and we fed into the Post Register the information and I would personally review those press releases after Mack Corbett prepared the draft and we would let people know ahead of time and then we would tell them what had happened on the day that it happened. Afterwards, when there was a report available, we would identify that these are the results that we got from it, so I think this would be an excellent thing for your group to locate because one of the things that Secretary Hazel O'Leary has inferred is that we were being subversive from the standpoint of releasing information on this type of environmental release, and this was not the case.

Baldwin: We really need to show that at least at INEL and NRTS we never, we were not, but we can't speak for the other side.

No, no, no.

Baldwin: No, just for ourselves.

Again, Burt, again, we were different because we were the first site after the war, built by AEC. We weren't a Manhattan Engineering Project which was war-time secrecy, closed community, etc. We were designed to be the first peace-time site and to be open, and we took that very seriously. Okay, now we're back to the Weiner Roast Test. Weiner Roast (again, Claude Sill would be somebody to talk with on this) was a concept of Dr. Beard's, in my opinion. I am sure that Claude was involved in it. I'm not sure anyone else from our division was originally involved. The idea was that in anticipation of the aircraft nuclear propulsion project and the fact that we were going to have to have a runway and a hangar in Idaho, and since the place where test aircraft normally crash is at their home airfield on takeoff or landing, then the NRTS could be faced with the crash of a nuclear powered aircraft or a plane that contained a reactor, so what Dr. Beard did was to get a fuel element and I don't remember, this was all in the report that was issued. It's one of the first of the 12000 series documents by IDO, maybe No. 2 or 3 with Percy Griffiths as the senior author and I think Claude Sill was another one, and I

Interview with John Horan

think there was a movie made and the movie should be available in the film library.

Baldwin: the wherever those are stored now.

The key idea was get a spent fuel element and to basically burn it. For the first test, a pool of kerosene (I think it was about 500 gallons of kerosene) was used and a part of an aluminum fuselage of an aircraft, the waist part of an aircraft was used, and the element was suspended directly over the center of the fuel and then it was ignited, and this was done at the test grid No. 3 out on Lincoln Road that the Weather Bureau, what do they call it now, where the Oceanographic group now has all their towers at.

Baldwin: Uh huh, we call it Fire Station No. 3.

Yeah, it was northeast of there, the other side of the river. I was at NRF at the time and I heard about this thing and I wanted to be involved and to get my people involved from the standpoint of environmental monitoring, and also we wanted to watch over the Admiral's interests.

Baldwin: Oh yeah.

Ahem, in case the cloud shifted. The grid was set up so that the Y axis was basically a few miles to the east of NRF and it was a 60-degree grid, I think, highly instrumented, particularly close in. So the movie cameras were operating, they set the thing on fire, and basically there was no release. So that was Weiner Roast 1 or A, I'm not sure how they named it.

Baldwin: This was a test reactor fuel element or was it an ANP mockup or is that a detail?

It is a detail, and it was a surplus unit, a surplus element and it was aged. It had no short half-lived radioisotopes, you know, again protecting the environment from a gross release. So then that was a "failure". We didn't get any radiation, and we didn't get any field studies. Then the second one was done and this time they decided to use an induction furnace to supply higher heat directly to the fuel element, same location, etc., and this time they were highly successful and there was a release. The trajectory is plotted in Eddy Chew's report, okay, and it's very well documented there. One aspect of it that was most interesting: I was out there with a team of monitors from NRF and this was done again in the afternoon, late afternoon, and I don't

Interview with John Horan

know, it was well after 4 o'clock that I returned to NRF. John Donnelly, does this name ring a bell to you, John was my sanitary engineer at NRF, a good industrial hygienist, too, so he was one of our field team, and I think Bud Fowler was another one of the monitors and maybe Dwight Burgener but we had a crew of four as one team to monitor the fallout area. They had several grids at exponentially increasing distances and some fixed instrumentation and some portable; we did have power on the grid at that time. Anyway, we get back to NRF and the security guard told me, he said, "John, we've had an alarm on the portal monitor just a little while ago", and right away in my mind I made the association with the Weiner Roast release. So I went back into the main building (we had a continuous air monitor going there) and took a sample off and gave it to our analytical chemistry group and they came up that it was Cesium 137. By then, it was about 8 o'clock at night and I picked up the phone and called Dr. Beard at his home and I told him that he didn't do as good a job as he thought in the design of that experiment because the cloud came over NRF. "Impossible, absolutely impossible!" I said I've got the air sample and I've got the results; if you want to do a separate analysis, you may. Okay, send it down to Claude Sill, and it turned out that the cloud had gone out on the grid and apparently the meteorology had changed, a shear had come in and it came back over NRF. Not that it meant anything healthwise. It was barely detectible above background levels.

Baldwin: That was the drainage winds, down out of the canyon. It turned you around.

Yeah.

Baccus: During that test, were there any...

No, nobody was allowed on the grid during the release. The grid was clear until the radioactive cloud had passed over the sampling instrument array.

Baccus: The sample teams, the monitoring teams, were they wearing any sort of protection?

Yeah, we always wore Anti-C clothing and, uh, usually dust masks were being worn. But see, this was after cloud passage so people were not on the grid at the time. Now during some of the RaLa runs and some of the ANP things, our mobile team would be out, back and forth, searching for the cloud, you know, so they could get in the centerline to pick up their air sample. They would

Interview with John Horan

drive through the cloud from a perpendicular line to determine its width and intensity.

Baldwin: I can remember Roy Jensen telling me how difficult it was getting in the pickup with the Scott Air Packs.

Yeah. But most of the time, that wasn't used.

Baldwin: I know.

And in fact, when we were out on the highway from Mud Lake northwest to Blue Dome.

Baldwin: He was cutting across to Blue Dome.

Yes, we would not, they would not have respirators on out there since they were 6 to 10 miles from the release point.

Baldwin: That's not good PR anyway.

Tom, you mentioned something else to me as a little aside and I didn't see this covered in your outline. You know, releases to the environment was a real concern that I was faced with, and in fact, the very day that I was sworn in for my job as Director of Health and Safety, I had to leave to go up to meet with the USGS to select a well, the next well that would be drilled to monitor around Chem Plant, and it was very interesting because this was the one well that did not hit water. It went down into a blue clay that I got excited about. See, I hoped we might get diamonds. I knew nothing about that type of monitoring program, I'd never been involved in that type of activity, and then to go up and meet with these people, and agree that this is where the next well should be. I think Hazel should be made aware of that there were tons of salt put down the disposal well at the Chem Plant as a tracer.

Baldwin: Yeah, you bet.

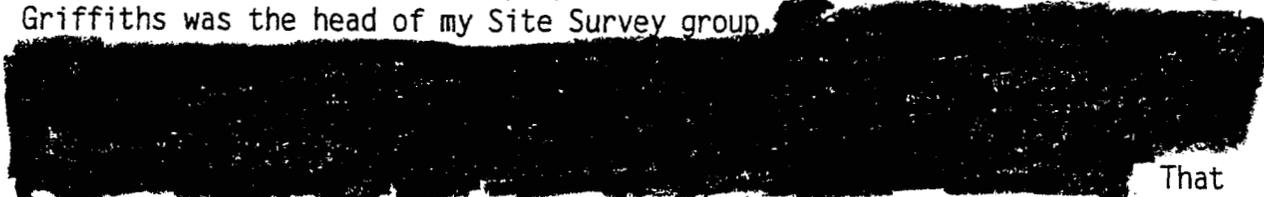
You know, this could be considered as human experimentation. None of the salt reached the first wells, the first monitoring wells put down by the Chem Plant were a mile away. Nothing arrived there so then they went in and started putting the wells down at a distance of a few hundred feet from the disposal well, just outside the fence, just a couple hundred feet, and again they were not finding it. Then USGS came in and they said, hey, we have a fluorescent

Interview with John Horan

dye, I think it was some material with a very high sensitivity in detection in water samples. They take the water sample and dry it and then look at fluorescence. So this was put down but the problem was the molecule was too big to go through the soil, sand, and gravel, so Bruce Schmaltz was the first person I hired in the division.

Baldwin: I still see him around town.

Yep, he was a civil engineer and he came into our group to head up the waste management program because we had no staff interplay. Tom, my first job in the group, and this is where I was not a popular director because I felt that we were doing very little science and things had to change, so I was like whoever you might want to say, EG&G or Admiral Watkins or somebody else coming in. We gotta do more science. Claude was the only one doing good science in the group and so, as a result, I started hiring. I did not have people I could promote within my group so I was bringing in all these outsiders and, in fact, a discrimination charge was made against me. I won't say any more details but it did not get to court, but the allegation was made that I was discriminating because I had brought in somebody from Pennsylvania who was different from local people and I didn't know the difference, all I knew was the qualifications and he was a very good individual, an industrial hygienist, in fact. But, I was bringing in a lot of new people and changing things and upgrading; I was bringing in college people, people with Masters Degrees, some with PhDs, into a group where people did not like college graduates. Percy Griffiths was the head of my Site Survey group.

 That was part of my upgrade of that group to get it more professional. Uh, I don't know where I was heading now when I started on that.

Baccus: You talked about the wells.

Oh, yeah, thank you, and, Bryce, so the thing we were going to next, and this would have been in '58, late '58, because we were going to discharge tritium to the disposal well as the ideal tracer. Thank God we didn't do that! And the reason we didn't do it was Savannah River the prior year had found about tertiary fission and that tritium was a part of any spent reactor fuel that has a leak or any reprocessing plant so the experiment had started five-six

Interview with John Horan

years earlier and we did not know about it, so we had the tritium already going out as a waste product.

Baldwin: You already had some there that you didn't increase. But I've seen that, uh, isotope concentrations...

Isopleths...

Baldwin: Yeah, isopleths, and if we can find the chloride tracer, that chloride flux... There's been a lot of salt dumped down there.

Oh, tons. Tons of it, yeah.

Baldwin: And there must have been some done at TRA for the water softening for the boilers and...

Yeah, yeah.

Baldwin: And I think they were softening the water for all the boilers, didn't they, the TAN and the CFA?

Yeah, but literally, we had truckloads of salt taken to the ICPP disposal well and dumped down. I was trying to get it used as a tracer to measure the flow rate of water in the aquifer.

Baccus: I'd kinda like to ask you some specific questions.

Okay, go ahead, go, go, go.

Baccus: You alluded to earlier that, as far as human radiation experiments, that you were primarily involved with the CERTS.

That's right.

Baccus: Did you have any involvement with the whole body counting calibration efforts in the inhalations and ingestions?

The part that I knew about and endorsed was the use of capsules to help calibrate the whole body counting equipment.

Baldwin: These capsules are not the gelatin capsules that one gets for...

Interview with John Horan

Pharmaceutical use, no. They allowed the tracer quantity of specific isotopes to be totally contained while passing through the GI tract and out the body. I don't know the nature of the capsule but basically some tracer quantities of isotopes, and we were finding them during routine whole body counting and trying to find as well different isotopes, particularly in TRA exposures following ruptures of experiments and releasing such exotic things.

Yes, we did.

Silver was one of them. And some of these we wanted to be able to calibrate the equipment and you can't do it unless you really know your source term, so extremely minute quantities were put in capsules which were passed through the body without being digested and, while they were in the body and in the GI tract, determinations would be made of the material and gave us direct calibration and usually these were individuals; all of them that I know of were people from the laboratory and specialists in bioassay who were doing this to help their own work, increase the precision of their measurements.

Baldwin: Somebody would then calculate the expected radiation level from it so you'd know how much you'd have to have as a source.

Yes.

Baldwin: Would they also calculate the dose to the gut as it went through, as opposed to the body?

Sure, yeah. And this was done beforehand. This was predictable. We were not just doing something in the dark, you know, you throw this dart and where it lands. There were a few early phantoms made of plastic in which isotopes could be placed in various organ locations but these were not very accurate nor lifelike.

Baldwin: Was there a review and approval process of this?

I presume there was but I am not sure.

Baldwin: Because again, that was in the organization. There was a branch that dealt with that.

Yeah, and this was Claude Sill's branch, yes.

Interview with John Horan

Baldwin: Okay, so it was his people? You're not specifically aware of whether they went back to Germantown for approval...

Oh, no, that I know; they did not, because you see, I was the contact with Germantown.

Baccus: If they had to go back to Headquarters, you were the person that they went to help?

Yeah, yeah, that's right. And by the way, I reported on this information. We used to have an annual meeting of the Health and Safety directors from all over the country, so in other words, I'd represent the site, John Harley would represent the New York Operations, the Health and Safety laboratory there, and there'd be somebody from Oak Ridge, from Livermore, from Los Alamos, etc. We got together once a year to talk over what had been done, what problems they were having, this type of thing, and I routinely reported on this type of thing to them. I never heard anybody else report on related work.

Baldwin: Oh, really.

Yeah.

Baldwin: Oh, oh, that's an interesting thing, we had the...

I just thought of that.

Baldwin: ...impression that similar things may have been done in other sites, but they didn't report of them.

Yeah, and I don't think that they even talked to Headquarters about it either. I think they were doing it on their own, particularly when AEC Headquarters said we were the first to come in and get approval.

Baccus: Was there some reason or some difference on why your request for approval went to Germantown for the CERT test when that same type of approval process was not pursued for the calibrations on the whole body counting?

I don't really know, but I would not consider them in the same category. The fact that one had gone in originally and paved the way for doing it and understanding how it could be done, etc., there'd be no need. Incidentally, this is why we were on the cutting edge. We were the first people to introduce

Interview with John Horan

thermoluminescent dosimetry to be used as a permanent record for exposure and, again, I went in to Headquarters with the legal group, etc., because it was the common knowledge that you had to keep the exposed film and be able to take the film to court and show it. In fact, I had a lawyer on my staff, Preston Brimhall with the dosimetry group, and Pres came up and said to me one day, he said, "Hey, John, if a doctor takes a blood sample or a urine sample, he does not have to produce it in court; the ordinary business record can be accepted. We ought to do the same thing on TLDs." So then I took the fight to Washington, got the endorsement, and other groups, Hanford, Oak Ridge, etc., said, hey, how can you do this? And I got legal approval from the highest level within the group and then the others could do it. They didn't have to go back through and pave the way again.

Baldwin: We're approaching the end of the second tape. We may be approaching lunch time, too. Would you like to finish what you had started there, Tom?

Baccus: Well, one more question I would like to ask, or actually two questions. We've identified one, at least we've had statements made that there was a blood vessel occlusion experiment conducted around the 1962 time frame and this one individual indicated that he was involved, along with five other volunteers; they were all Navy personnel attached to NRF but the experiment was a private experiment involving private physicians out of Washington state who were treating this individual's father for a heart condition and they...

Private physicians out of where?

Baldwin: Washington state, I think it was Spokane (my notes say).

Baccus: Supposedly they came over here and injected these six individuals with a radioactive tracer to determine a blockage. The only involvement this individual indicated the INEL had was that they spent two hours being counted on the whole body counter and we were wondering if you have any knowledge of this, recall anything. We have been unable to find any records associated with this.

Okay, I presume you do have the individual's name?

Baccus: Yes, we do.

Being NRF at that time, we do have his medical and dosimetry records as part of the documents of the site.

Interview with John Horan

PRIVACY ACT MATERIAL REMOVE

Baldwin: Is it '62?

Yeah.

Baccus: However, this again, the Navy was not even part of this experiment. This was an off-time, off-hours thing...

But on Navy people?

Baccus: Yes. It was on Navy personnel. But they volunteered, as private...

Okay, then the other thing that would be involved, and I would still check the medical records. You see, at one time, the Navy originally wanted to be totally independent of Idaho, and in fact, when I was at NRF, I had joined the group in 1953, I was sending film badges air mail back to Pittsburgh to be processed and then two weeks later, I was getting the data back, but I had no control over radiation exposure because it's like two weeks later before we had results. So one of the things I tried to argue while I was with them was, "Hey, this is foolish to do this; there's a good service here at the NRTS. We could have results immediately". And this change did not take place until '57 or '58, but then the change did take place and an interesting aspect of it, Burt, that you would like, is that when you ask the prior exposure of the individual, they gave you the data from '53 through '57, as one dose number, so this got entered into the records as the exposure for that one year.

Baldwin: Wow. Okay.

And this was during a period of time of high exposures, 15 R was the annual whole body limit. The other thing, if there was whole body counting, Claude Sill was the one that would have done it, nobody else. The first whole body counter went into use in December of 1960. Now when SL-1 occurred, since our whole body counter had not been calibrated, we sent the five people we were most concerned about to Los Alamos to be counted because we could not guarantee our equipment was that accurate. There was no difference in the resulting data. By the way, one of the people we went down there was [REDACTED] part of the reason we sent him was to get him off-site.

Baldwin: Yeah, we can say that now. Okay, understand.

So Claude Sill and Claude's documentation is fantastic.

PRIVACY ACT MATERIAL RE.

Interview with John Horan

Baldwin: Yeah.

Every sample that went in went out on a log sheet, numbered, etc., and, um, but I have no knowledge of any NRF personnel tests and it's strange. It sounds like one of the what I call horror stories that are put together, based on some bits of fact but exaggerated on impact, etc., and for self serving reasons.

Baldwin: Well, we just wanted to check with you. The other question I had has to do with some notations we have found in the whole body count records on some individual counts that were done in December 1962, and the only notation in the reference to "NW studies". And the individuals were from CFA-646 and we were wondering if you happened to know what "NW studies" stands for, what it means, if you recall anything there.

No, and in the timing of this, December of 1962. Okay, CFA-646, is that the old Health and Safety building? Is that the old control point, where they did the test firing of the Naval guns?

(Tape ended abruptly at this point.)

(Edited by John R. Horan 12-16-94 through 12-22-94.)

(Final - 1-10-95)