

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

Interview with
Oliver W. Kaufmann

November 29, 2005
By telephone from Las Vegas, NV to
Bradenton, FL

Interview Conducted By
Mary Palevsky

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

Oliver W. Kaufmann: My name is Oliver W. Kaufmann. I was born in Hartford, Connecticut, June 8, 1918. [Mother, Mary Stoltz Kaufmann, father, Wilhelm Kaufmann]. I attended the University of Connecticut where I received my Bachelor of Science degree and my Master of Science degree. I was always interested in biology and living things, so it was natural for me to be interested in such things as the Atomic Energy Commission's [AEC] interest in fallout and so forth.

Mary Palevsky: *Now, just to spend a couple of seconds on your childhood, in what sense were you always interested in living things?*

For two summers while I was in grammar school, I attended a program sponsored by the Children's Museum of Hartford in which we studied birds and bees and everything else, and after three years I was one of two people who had earned more than 500 points in the study of geology and birds and lands and everything of this nature.

Wow. OK. So with the [Nevada] test site [NTS], give me a little bit of a sense of your awareness both with the end of World War II and the atomic bombings in Japan and what came afterwards; your knowledge, your general knowledge of what nuclear weapons and radiation effects and things like that were up to the time at which you end up going to the test site.

Would you come again, please?

I'm sorry. Can you hear me OK?

Well, I have a hearing problem, so I'm on a special phone, but I hear fairly well.

OK, I'll speak more slowly. Since you ended up going, as you told me before we started recording, out to the test site, I'm wondering at the time, in the early fifties, what your awareness was as a scientist of nuclear weapons, radiation issues, fallout issues, just the subject matter in general.

Very little.

OK. Where had you been at the end of the war when Japan was bombed with the atomic bombs?

I was working in the food research group with National Dairy in New York City, and the research I was doing there led to the development of a new treatment for starving Japanese children and for the treatment of ulcers. Patients at Bellevue City Hospital were eating the material that we were developing to help them cure their ulcers.

Interesting.

And since I had been refused a commission after graduating from a four-year ROTC program, I was subject to the draft, but I was able to convince the people I talked to that not only was the work I was doing important, but that I had volunteered to serve as an officer and was rejected for a physical reason. So they finally gave me a working deferment, and as soon as the war ended, I made plans to go back to school and get my Ph.D. degree.

OK. And you did that at Purdue [University], you said.

Yes, I left New York City and National Dairy and went to Purdue University where I took my Ph.D. degree in 1950.

OK. And then where did you go from Purdue?

From Purdue I went to the University of Illinois.

So you were a professor there?

Yes, in the Department of Food Science.

Now what was it that you think—you said before we began recording that you were contacted by the [United States] Public Health Service [USPHS]?

Yes. Well, I used to attend scientific meetings in Chicago and gave several papers there, and after one of the papers this gentlemen who was a member of the Public Health Service stationed in Chicago came up to me, and I had known him briefly anyway, and asked me if I would be interested in doing this work out at Las Vegas [Nevada] because he knew I was interested in research and in various things and so he suggested, why don't you consider joining the Public Health Service and seeing if you can work out there? And I said, I'll give it some thought, and said yes, I would.

[00:05:00] *Now were you married at the time or single?*

I was married when I was at Purdue to Katherine Joseph, and I have two children. I left a three-or-four-month-old boy to go to Las Vegas.

OK. So tell me about what that's like, going from Chicago? At this point, do you know that it's going to be related to questions of fallout? How much do you know?

I knew very little, but I'm interested in the idea of something new and adventuresome.

Great. Great. So tell me what that was like.

When I was out there, I was amazed; I was dumbfounded; I thought it was great. I was completely unaware of the danger involved and no one emphasized that point and so all of us went glibly along, thinking that there was no problem from a public health point of view, which later turned out there might be some.

So first you go for training, you said.

Yes.

What kinds of things are they teaching you about when you go?

They taught us how to read radioactive fallout disks and how to put up monitors and a little bit about the bomb itself. I was rather impressed with the fact that—two or three of us one evening, we're sitting in our room in the barracks discussing how tall the towers were from which the shots were dropped, and someone knocked on the door and said to us, *It's not necessary to discuss that.* We then began to realize how secret a lot of this stuff was. So we weren't to talk about it and we weren't to talk about a lot of things. We were told, for example, that the "sheep problem" was not a problem.

The sheep problem.

Yes, there were some radioactive sheep or animals that had been subject to fallout and we were told that the animals were suffering or were dying from something else, not radioactive exposure.

And what did you make of that at the time?

Oh. Well, we believed it. We thought, well, they know they didn't die of that, and having somewhat of an inquisitive nature, I believed what I heard until I found out otherwise.

Interestingly enough, we were given a trip at the end of our training program to St. George, Utah. We were told to go up there and talk to the people and spend the night and come on back, to give us some idea of the terrain we would be in and the people we would meet. Later I find out that St. George, Utah was exposed to a little radiation at one time or another.

Right. So this is part of the training that they send you up there?

Yes, we stayed one night in a hotel in St. George, Utah. About six or eight of us drove up in two or three cars.

So ostensibly what was the purpose of going there?

To learn a little bit about the countryside, because I had been an Easterner, I had never been out West, and to find out what the people did in St. George, where the fallout stations were, and to

come back another route so that we went through Tonopah [Nevada] so that we would just know something about the area in general.

Right. Now just to help me understand your understanding of what that training was, because I have a question that arises. You seem to be saying that you're being reassured about the sheep and you're not being particularly concerned about fallout in St. George, but it also seems to me that you're there for some kind of monitoring purpose.

Not monitoring purpose, but to learn if, for example, you were to be ordered to St. George, we would know where it was and we'd know something about the vicinity. Because most of us didn't know anything about the West at all, didn't know what we would encounter, and to give us some feel for what our work might involve.

OK. So, just so I understand it, you're training is in case there were a fallout situation? I'm trying to understand what the purpose of your position was.

Yes, just to give us some training through the travels we might encounter, the little cities and towns you might go through, or give us some idea of what the environment was like around Camp Mercury.

[00:10:00] *OK. So this training lasted how long, you said?*

Two weeks.

And what other kind of scientific stuff did you learn about fallout at that time?

How to use radioactive devices. We toured Yucca Flats and saw the effects of atomic detonations. We were calculating radiation doses and so forth. To give us some background as to what our unit was supposed to study when we were out there; we were to collect data.

Great. Now you said you went in fall of 1954? Is that right?

I said I was contacted in Chicago in the fall of '54 and went to training in December of '54.

Got it. OK. What did you think of the American Southwest desert when you came? Real different from the East Coast.

I couldn't believe it. I mean it was great. I wrote a postcard I have here in front of me to my mother and father and I said something like—I said, "This is quite an experience. It's a beautiful country."

Yes. Now at that time, when you first go for your training, were there tests going on at the test site when you go?

There had been a few tests, I'm saying ten or fifteen as near as I can tell. There had been some tests, some bombs detonated before I got out there, yes. There were three series, I believe, I forget what they call them, but my guess is it involved about fifteen or twenty atomic drops before I got out there.

Right. I'm looking at my schedule and I think the one closest before you was in spring of '53.

That could be right.

Called Operation Upshot-Knothole.

Right. That was it.

So you're looking at radiation effects that have come to be on the test site before you arrive.

No, future drops.

Now tell me about the other people in your cohort. Were they all at the same level of education as you were?

I wish I could tell you. I really don't know. I only remember four names. Two of the people whom I worked with and studied with, they were up in the, I believe, the Health Department or some unit in Utah. One was a commissioned officer from New York City who was stationed in

California, and the other individual I didn't know where he was from. There was very little time for socialization.

OK. And who are the people? It's the Public Health Service. Are you interacting with Atomic Energy Commission people at this point, or are you pretty much your own group?

No, there was a group of Public Health Service people, I'm just going to guess ten, I could be way off, but I was the only one that was stationed at the base. The other eight or nine or whatever they were, were stationed around the countryside. They were stationed in Tonopah, they were stationed in California, they were stationed in Vegas. I was stationed at Camp Mercury proper, so my assignment was to cover the fallout that occurred in and around Camp Mercury from, let's say, Camp Mercury north to Beatty [Nevada] and south through Nellis Air Force Base [Nevada]. That was my area.

OK. Now you were in the barracks at Mercury?

Yes.

Now were there other armed forces people stationed there at the time?

Well, during my training program and while I was there for six weeks, there were a lot of people milling around and I didn't know who they were and there wasn't very much communication between groups. We all had our small group. We did our own work. Oh, yes, there were a lot of people milling around. I don't know who they all were.

OK. And just to give me a sense of what your impressions of Mercury itself were, the setup there [00:15:00] and the buildings and the activities, what was that like?

Well, just like being in the Army. We had our barracks. I stayed in the barracks. I roomed with a security officer and we talked occasionally. I guess he left earlier than I did. But we talked occasionally, and on one occasion I asked him, you know, I knew the bombs came from off the

site, and I said, Well, what happens if a car approaches you and you're leading the truck with the bomb on it into the Mercury site proper? And he said, I run that car off the road. I didn't believe him, so I don't know, a week or two or three later, and this would be when I was there for my six-week tour, I saw the sheriff's car coming with all the lights blinking and I knew darn well he was driving it and in back of it was a truck pulling the atomic bomb. So I pulled over and I kept on the road like I was going to keep on going, and he just drove me off the road. I just drove off the road until the vehicle carrying the bomb went by, and proceeded back on the road again. But he wasn't kidding. He said the rule is there's supposed to be: "no moving vehicle passes the atomic bomb." Near as I can tell, the bomb was stationed just on the Nellis Air Force Base property or at the Nellis Air Force Base interface of the Nevada Test Site, within a mile or two of the entrance, the old entrance to Mercury.

Right. Well, that's an interesting story because it brings out the fact that you're a scientist, that he told you this but you had to verify it in experimental terms.

Well, I had a blue car, he knew that, so I thought he would know it was someone from the camp, but regardless, no moving vehicle goes by the atomic bomb.

Wow. So when your training finished, two-week training, did you go back to Chicago?

I was living in Champaign-Urbana [Illinois] at the time; I rejoined my family in Champaign-Urbana. I was still teaching at the University of Illinois.

OK. So when does your six-week tour come?

That starts in February of 1955.

OK. So there is actually an operation going on at the test site then?

Not that I know of. You mean in February 1955?

Yes.

Yes. Operation Teapot started.

Correct. So did you go to be working during that operation?

Yes, I worked on Operation Teapot for six weeks.

OK, let's talk about that.

We dropped eight bombs.

Eight bombs.

Eight bombs, yes.

So tell me what your job was like from day to day as this operation is going forward.

Well, the devices were always dropped at dawn or predawn, and a lot depended on the wind direction. So we'd prepare for an operation on Tuesday morning and I wouldn't do very much except get ready to go up and see the bomb go off, and by twelve o'clock midnight they would cancel it because the wind direction had changed. And then we'd sit around all day Wednesday or Thursday and wait for the wind to change, and so we did a lot. While I was assigned on the base, I did some lab work.

OK, what did that involve?

It involved testing the radiation disks that came back in, to see how much radiation there was.

But my major time was spent, when there was no bomb going off, my major time was spent inspecting the various fallout stations I had set up from Beatty all the way south to the Air Force base.

OK, let me get some detail here. You set up these stations.

Right.

What did a fallout station look like? What were its components?

Just a post with a tray on it on which we'd put a radioactive plate of some sort which would pick up radioactive waves.

OK. And what was the plate made out of that it would do that?

Oh, gosh, I don't remember. I know we set up one—do you know whether or not there's a school as you enter Beatty?

I don't, but we can find out.

It was either just outside of Beatty or Tonopah and I don't know which. I think it was Beatty. There was a house of prostitution well-known in Nevada, of course, and I set up a radioactive station there because the school was located right next to it and we wanted to know the radiation that might possibly leave fallout in the area where there were schoolchildren.

[00:20:00] *Now I've heard that story, that there was a station in one of the houses of prostitution.*

Right.

So you're the person who set that up.

It was on the left side of the road as you approach either Beatty or Tonopah, but I'll bet it was Beatty.

OK, I'll find out. [Beatty is correct].

Another interesting thing is one morning a gentleman came out from the house and said, Hey, you want to come in and have a cup of coffee? And I said sure, so I went in and had a cup of coffee.

So did you have to interact with the owners of the brothel to set the thing up?

Yes. I inquired of somebody there, would they permit me to come on their property and set up this station. We did that at any place we went. If we set them up at a gas station or wherever, we

would ask for permission to set it up. Most of the time, they were only too happy to have the fallout tray near their property so they could get some idea as to what their fallout exposure was.

They cleared it with us, yes.

OK. So you had had the job of setting all these things up.

In my area, which extended from the camp up through Beatty. I had the desert, of course, too, but not too much happened there.

Right. So you'd pick, according to certain distances and wind patterns, I guess, you'd decide where you want to put them?

Right, and the particular spots like where there might be a school or a public building of some sort. On one of these, I didn't have a fallout tray, but on one event, after one bomb, I was traveling up [Highway] 95 towards Beatty and there was a motel on the right-hand side of the road as you go towards Beatty. Had to evacuate all the people in the motel because the wind shifted and the radiation was likely to blow over that area, so we evacuated all the people from the motel.

When you go to do that, what did you tell people?

Well, you had to be very careful because this is dawn and most people, you know, don't want to wake up at that hour. [You] just tell them there's a radioactive cloud that may hit this area and we're advising them, not ordering them, but advising them or requesting that they leave the area. Most of them did. We were told and taught to be somewhat tactful in this approach so that they wouldn't get too upset and blow their head off or something or other.

Right.

That's the only evacuating group that I ever dealt with.

OK. So I want to back up a little bit and ask you if you recall the experience of seeing your first nuclear test.

Oh, yes.

Can you talk to me a little bit about that?

You never forget it. I had to go out to the test site and we were located, I don't know how many miles from the tower at Yucca Flats. There was a little shack up there, and there were, oh, it was maybe eight or ten people there, dignitaries of some sort, and I was stationed there. It's like a living monster when it goes off. When you finally turn around, I don't know if you got my other note or not, but in the shack we were told how to behave when the shot went off. We were to face away from the shot and put our faces and our bodies against the wall of this wooden shack that we were working out of and to put our hands over our eyes, count to ten, before we turned around to see the shot. When the shot went off, you could see the blood vessels and bones in your hand covering your eyes, the blast is so intense. And just about the time you saw those and realized it, you felt something hitting you in the back of the head; it was the heat, the shock wave passing by. After the shock wave passed by, you were permitted or you could turn around and see the shot. By that time it was, I don't know how many feet off the ground, but it was a rolling, boiling cauldron, and it kept going and boiling up and this, and then the sand in the desert seemed to come up, making a saucer around it. It's just like a big monster going up, and it was quite impressive, believe me. Incidentally, the man who told us to cover our eyes and be sure not to turn around was blind, and I was told that he had turned around too early and the intensity of the shot had blinded him.

Really. I never heard that story.

[00:25:00] Yes, well, that's the story they told us. Anyway, we covered our eyes thoroughly.

There were only maybe five or six, let's say, personnel there, like working personnel. There may have been six or eight visiting dignitaries, senators or somebody or other, you know, or somebody from one of the test operations there. But it was never a big group, maybe eight or ten people there at the command post. But it was—you never forget it. I tell you what, it's ruined the Fourth of July.

Why?

You can't make a firecracker big enough.

Oh, I see. But you didn't have goggles on. You just had your hands over your eyes, is that what you're saying?

Well yes, we had goggles on and our hands were over the goggles.

Got it. OK.

Over the goggles, yes.

And your eyes were closed and your hands were over the goggles and you still saw the—

Right, you could see the blood vessels and the bones in your fingers. Yes. It was something.

Wow. Yes. And you saw several of these shots, is that correct?

I saw eight.

You saw the whole series?

Well, no, I missed nine and ten, I believe. The ninth shot was an aerial shot, the first time they set two shots off the same day; at the ninth shot I think I was on my way back to Vegas to take a plane or a train back home, so I didn't see that last—ninth shot. I think there were ten shots in the series. I saw eight; I saw the first eight.

Wow. OK. I'm just looking at the—I have a little list here of the shots. [Referring to DOE/NV—209-Rev 15 pp. 4-7]

Yes, I've got a list here, too. I saw through—

I think there were—it looks like there were nine. One, two, three [sound of pages turning], four, five, six, seven, eight, nine. . . .

That was Wasp Prime. There was test HA after that, test Post after that, test MET after that, and that's the last one. Wait a minute. There was test Apple-2 and test Zucchini. According to my records here. [Total of 14 tests listed for Operation Teapot. Dr. Kaufmann observed tests 1-8, through Apple 1 on March 29, 1995]

What's interesting about that—OK, there's Wasp Prime. I see it. Got it. Wasp Prime, Post, MET, Apple-2, and Zucchini. Yes. So the biggest I'm seeing, looks like the biggest test in this series was Turk: forty-three kilotons. That's twice as big as the bombs on Japan.

Yes, that's a big one.

And you saw that one.

Right. I got a note on my paper down here that says, "It was something!"

Yes. Now not to press this too much but by the time you've seen a few shots, are you seeing the differences between the smaller ones and the larger ones as far as—?

I think you notice a little difference, yes. Some of them didn't seem to go up quite as high as the others. Maybe the diameter didn't seem to be quite as large. They were all impressive but there was a little bit of a difference. And you couldn't tell. Sometimes the wind would be blowing your shot away from it and it would look whiter because the wind was blowing the shot away from you, you know.

Interesting. And I have another sort of general question to help me to understand your work a little better. These atmospheric shots are going off in the desert and you're setting out these monitoring stations. As a member of the Public Health Service, are you thinking in terms of safety issues with fallout? And there's a second part to this. As a scientist, obviously, are you thinking about scientific data as well as about fallout effects? Are you making a distinction between those two things?

Not really. I think you're too busy watching the cloud and trying to figure out where that cloud is so you can go and make contact with it and determine the level of fallout. The time I went through Nellis Air Force Base when I was on the Tiger bombing range, the shot went the wrong way and no one at the base realized—well, they realized it but didn't want to know what the fallout was, so they just said make contact with the cloud. So you're busy watching your radioactive meters and driving and trying to find out when you first made contact with that cloud so you can radio back the information to the camp.

[00:30:00] *Oh, great. So tell me more about that, making contact with the cloud. The detonation goes off, as far as I understand.*

Right.

You observe it for some period of time? You observe it to see which way it's going, is that right?

My assignment was to be the first one out. From that lookout point, my assignment was to be the first one out of that lookout spot. As I left Camp Mercury at [Highway] 95 there, I was told by radio to either go north or south because they thought the cloud was going up towards Beatty or down towards Vegas. At the campsite I was told which way they thought the cloud would go and my job was to make contact with the cloud if possible, either on the way towards Beatty or the

other way, so I could radio back to the base commanders what radiation levels I was experiencing, if any, as I traveled up and down 95 or off on the side roads.

How interesting! So explain to a layperson like me what exactly making contact with the cloud means.

When the dial on your radioactive device goes way up high. You may read something like ten or eleven, and these numbers are just guesses, if it goes up to 100, 200, you know you've made contact with the cloud.

A hundred or two hundred—

Well, don't use these—

No, but I'm saying, what is the unit of measure here?

Rads, I guess.

OK. No—we know you're giving an example, that this isn't some sort of scientific statement.

If the meter would read nothing and all of a sudden would pop up to some level, then you knew you'd made contact.

OK. And are you visually also seeing the cloud at this point?

Maybe not. Probably not.

It's dispersed.

To see the cloud, you'd have to be almost—you'd have to be rather close. The radiation would fall out from the cloud, so the radiation level could be miles from the center of the cloud, so to speak, and you'd begin to pick up the level of radiation.

I understand.

Along that line, I have an interesting thing I might read to you here. It regards, oh, let me see, higher readings. Let me check to see; it's, I believe it's shot number two, Moth. I'll read you the

paragraph. “Higher readings, 200 to 310 mR [milliroentgens] per hour were obtained north of Highway 95 on the Game Refuge Road and on the road from Indian Springs.” [See attached letter dated February 23, 1955]. I went south out of the Mercury campsite to the Nellis Air Force Base when they decided the cloud was going to go over Nellis Air Force Base and they told me to head into Nellis Air Force Base and make contact with the cloud. They neglected to tell me that I was going to be on the Nellis Air Force Base bombing range, which was active at twelve noon, and when I told them where I was, they said, Did you clear with Nellis Air Force Base? I said, No, you ordered me to. You were supposed to clear. So they finally cleared. And I was driving a blue Ford car. Guess what the bombing target was? Old blue Ford cars abandoned by the people at the base.

No way!

Yes. Now to continue, it says, get this, “No EBDs,” that’s effective biological dose, “have been calculated. There were no people in such areas *other than* Kaufmann, Seal, Harris, and Coleman.” Seal was my partner. They had high levels of radiation but there were no people in such areas *other than* the four of us on duty. Oh, and then it says, “By the way, Seal and Kaufmann returned with many trophies, old pieces of bombs.” I don’t recall that but we returned with a lot of radiation, I remember that.

Now did you take any special steps when you had—?

Well, this was about eight or nine o’clock in the morning and we drove all day through the desert because we were lost, and finally we followed some old road beds and creeks and finally came to a big, flat, dead lake and made a left turn somehow or other and ended up hitting a guard at Camp Mercury. He stopped us, and he knew we were lost because he had been told to be on the [00:35:00] watch for someone. So he let us into the camp, OK’d us. We had to wash our car.

And they said, well, when you get back to camp, wash all your clothes. We had the highest levels of radiation of anyone at that time, and when I left camp, I had the highest radiation of anybody at that time that left camp, in March or April of '55.

So we did make contact with the cloud, but we got there after the cloud had passed by and the sand was still in the air and we were covered with soot and everything, and with sand. *Now at the time, were you concerned about that, with the radiation exposure, or was it something that—?*

I wasn't concerned, no. I didn't really understand enough about it to be concerned. And I was doing what I was told to do and what I went out there for, so I guess that's the risk you accept. *Right. So that's a really amazing story.*

Yes. I'm surprised, it's documented in a report I have here dated February 23, 1955.

And is that a report that you got from some source?

Yes. The report is "To: All Zone and Mobile Personnel, From: Mel Carter, Subject: Shot One and Shot Two."

Yes. Dated February 23, 1955.

Got it. OK. So what you just told me is actually—they put in that report what you reported.

Yes.

Interesting. Now when that kind of thing happens, what are your concerns about your various stations that you have set out? Do you have to go check all of them?

No. Since this went away, went south rather than north from Beatty, when that explosion went further south beyond Nellis Air Force Base, some other people were out in the outer perimeter with test gauges and so forth. So all we did is warn them, the base commander, as soon as possible, what levels of radiation we encountered. Then they knew it was truly going in the

direction that they guessed and would warn the people in the area surrounding that to be on the lookout for radiation.

Right. And this, you said, was on test number two, Moth, that this happened?

Right. Yes, Moth, number two, Moth.

OK. Great. Very interesting story. So what else can you tell me about the details of that kind of work? Once you got back to camp, you had to make some kind of report?

Yes, we just filed a report that we either encountered no radiation or did and then the next day, we would have to go out and pick up all the material at the radioactive stations in our territory. Now I'd have to go up to Beatty and pick up the one up there and wherever else they were established and just turn the disks into the lab and then they would check them out, read them and record them and all that kind of stuff. I didn't get much chance to work in the lab because we were always out either filling out the stations or checking on something.

Right. It sounds like a very active six weeks, zooming around the desert and seeing those things going—

Right. Occasionally we'd have two days off when three or four of us would go into Las Vegas
What was your impression of Las Vegas at that time?

I thought it was a great place, but having been out there just a month or so ago, it was *nothing* compared to what it is now. The Strip was four or five places and that's about it. The big place was Fremont Street. They've even taken away the railroad station; on my first trip out there, I went from Chicago by rail to Las Vegas, it was a long trip.

Yeah. And did you go gambling? Did you like to gamble?

No, I'm not a gambler.

Me neither. But you went and saw some of the different casinos—

I went to the shows and clubs, you know, walked around, and came back home.

Home to Mercury.

[00:40:00] Home to Mercury, right.

Right. That's a great thing. Sort of a great title for something, "Home to Mercury."

OK. Well, this gives me a really good sense of what you were doing. Now you're in the Public Health Service. Do you have a rank in the Public Health Service?

Yes, my rank is Scientist.

OK. So do you report to somebody during this time?

Amazingly enough, no. No, I reported to—it must've been to Mel Carter because I believe he was head of the lab. I just reported to Mel Carter and I never received any real strict orders. I was just told to do the job of going out there and filling in the stations and picking up the radioactive disks and chased the clouds. I never reported to anybody in Washington, D.C. I just reported to the individual on the base.

OK. And this would be verbally and through written reports.

Verbally.

OK. All right. And—oh, what was I going to ask you? Wait a minute. I just thought of something I wanted to ask you about that and I promptly forgot it. Oh, I remember now. And in this period of time during this series, you had said during your training you went up to St. George and met people. What, if any, kind of interactions did you have with the general public during this period of time when you're looking for the cloud and checking your stations, et cetera?

Most of them were fairly responsive in a polite manner. I did go out and warn two miners just south of Beatty somewhere. There were two gold miners out there and I was told to go out and find them and to tell them that there was going to be a shot the next day. They said, Oh, well,

I guess we'll have to leave, but they didn't kill me or anything. They were, I guess, glad to hear that they were going to be warned, at least, of a radioactive shot, and they just said, well, they'd leave later on in the day. I went out to warn some Indians on the north of the Las Vegas side—north of the campsite somewhere but could never find them. I was told after, well, they probably knew a shot was going to go off, so they left. And as I say, the people that evacuated, well, some were startled, some were happy to see you, some were—no one offered to fight or were argumentative or anything. They sort of accepted the fact that, well, this was necessary and thanks for the warning.

OK, so there was an awareness that there were some Indian people but you didn't find them.

No, when I went back and reported that there was no one there, they said, well, they probably knew there was a shot and so they left the area.

Right. OK. Now so my understanding is that your tour of duty basically was this Teapot series.

Right.

OK. Is there anything—?

Probably you've seen the Operation Teapot certificate, haven't you?

I have.

Yes, well, I've got one in front of me now. I've got one, too.

Yes, that's an interesting one. I have one right here somewhere. So yes, I have seen it. So you got that certificate also as part of being part of that operation.

Right.

And are there any other things that you've thought of that you think would be important for people to understand about your particular activities during that series that I haven't asked you about?

I don't think so. I think it was the beginning of the information period for the public. I think prior to that time, everything was very, very, very secret, and they were beginning to let the public know what was going on in an effort to help them understand the whole problem. I did notice one thing. At the [Atomic Testing] museum, I noticed in one of the exhibits there's a cow walking across the movie there, a cow, and the man in charge said, Here's a cow with a hole in it, cut in the stomach, a fistula or a hole cut in the side of the cow.

And I said, well, what did they do that for?

And he said, well, after the cow is out on the field all day eating whatever it eats, why, we can test the stomach contents for the level of radioactivity.

[00:45:00] Which I thought was interesting. But what I thought was even more interesting is Doctor [Joseph C.] Shaw and myself as a research student at the University of Connecticut were the first ones to put a hole in the side of a cow for the purpose of studying the stomach contents.

That's amazing!

Yes, we were the first ones to do it, and I've got the article. No one believes it. The article is somewhere in the *Journal of Dairy Science*. I don't know where it is. I don't have it on my desk here. But we were the first ones to put a hole in the side of a cow for the sole purpose of studying what the cow was doing. [Later confirmed *Journal of Dairy Science*, vol. 28, p. 468.]

Yes. So I was surprised at that. Oh my gosh, there's a hole in the side of the cow.

That is so interesting. What was Dr. Shaw's first name?

Joseph. J.C. Shaw. He was my major professor at the University of Connecticut.

Yes, because the hole in the cow at the test site came later.

Oh, yes.

And that's so interesting.

That was in '44, when I was a graduate student.

Wow. Now I have to ask you, although it's a little bit off subject, how the heck do you go about doing that without putting the cow's life in mortal danger?

Without putting the cow's life—?

Yes, because you cut a hole in it.

The skin of the cow is real, real tough, I'll tell you that much. It took us a long time to cut it through. We'd use a razor about thirty seconds in making the hole and then we had to get a new razor, the cow's skin is so tough. And we'd cut a hole in the cow about three or four inches in diameter, just cut a hole in the skin into the stomach, and then to keep the contents from flowing out, we had a basketball bladder made like a dumbbell, put the dumbbell into the cow's bladder and blow it up so it wouldn't fall into the stomach but would close the opening. Now the picture in the museum doesn't have a basketball bladder like we used. It has a more professional closure than a basketball bladder. We had no other way of doing it, so that's what we did.

Interesting. And then that allows you to study the contents of the cow's stomach.

Right, which is what we were doing to determine how to get the milk production up. They were using it to discover how much radiation the cow would eat, which was all right; good idea.

So you were trying to figure out how to increase milk production.

Right.

By what the cow ate?

Yes. Well, when the best cows in the world have a calf, their milk production for some reason goes way, way down in certain animals. It's called ketosis. And we were trying to figure out what we could feed the animal to prevent the animal from getting a disease known as ketosis.

Ketosis. Humans get that too, don't they?

Correct, they do. Yes. Only happens in the best people, probably, and only happens in the best cows.

So that was your purpose.

That's right.

And this was connected to the question of nourishing children, is that right?

Well, no, that was done in New York. That's another project, which was featured in *Life* magazine in New York. In New York we developed a product to feed the people with ulcers and the starving Japanese children. That was developed in New York and that's featured in *Life* magazine. [*Life Magazine*, March 4, 1996. This refers to my work at National Dairy in New York.]

OK. You'll have to get me the reference on that, too, because what I like to do with this kind of interview is not only include your transcript but have on file in our archive these related articles. For a scientist like yourself, that makes it really great for the researcher, to be able to go right from your interview to the article that you're referring to, to the report that you're referring to. So that'll be great.

So I misspoke. You were doing a certain kind of research at Connecticut and then a different kind of research in New York?

Right.

Interesting. I just think it's very fascinating that this method that you and Dr. Shaw came up with ends up being used at the test site.

I did, too. When I saw the picture in your museum I said, oh my gosh. And I thought it was weird too.

[00:50:00] *And I think that was the EPA [Environmental Protection Agency] that had that cow, or the Public Health Service; one or the other had the cow out at the test site.*

Oh, I see.

I'll have to tell you which one it was.

Yes, I don't know which one it was.

But back to the test site for a couple of questions. So you've given me a really great picture of what you did and I thank you for that. So to understand what the purpose was, the last thing you said was it seemed like they were just beginning to involve the public, that everything had been so secret.

That was my impression, yes.

Yes, and that seems to jive with another interview we have with someone who worked with Mel Carter and someone else, that there was some kind of move to some kind of public education.

Right. Yes, things began to appear in print and it was a good idea. It began to open up a little bit.

Yes. And so your monitoring gives you the data to be able to have that interaction, I guess?

Right.

And whatever other purposes your readings were used for at the test site is something that I think you said wasn't your concern. You were doing your job getting the data and chasing the cloud, et cetera.

Right. That was our assignment, to get the data into them so they could—when the data came in, if they knew, for example, that a certain area fifty miles away was going to receive a high level of radiation, they had the data on which to base the conclusion, let's evacuate that area, see.

OK. And they're going by whatever standards existed at that time, the level that the science understood about what was and was not dangerous dosage.

Absolutely.

Which remains a controversial question to this day.

Correct. I have never suffered any effects from radiation that I know of. I have perfectly white hair and I turned white right after I came back from Las Vegas, from Camp Mercury, but my mother and father both had white hair at an early age. People would accuse me and say, well, look, your hair turned white as a result of being out there and being radiated. Not true. So as far as I know, I have not suffered any effect of radiation, and I had a high level when I left.

Interestingly enough, at one time I wrote to the Public Health Service and asked for my medical records because I wanted to know my exposure level. They lost my medical records. But I haven't suffered anything. Matter of fact, I'm in fairly good health considering how old I am.

Well, you sound strong. You're just thirty-six when you're out there, so that is a little bit young to turn white, but you're saying that was also a family trait.

Right, my mother and father both had white hair at an early age. I still have it all, too.

Great. But people did make that point to you, that they thought that that was related to the test site.

Yes. And several people wanted to know if I was going to try and have children after that, in case I was sterile, but I already had a boy and a girl and I didn't want any more, so I didn't run that test.

OK. So it's something that's on your mind obviously, having been out there as—

I thought about it for a little while, but then I gave up the idea as I wasn't suffering anything because I didn't feel I had enough radiation to do the job.

OK. Now that brings me back, though, to something you said at the beginning about the sheep problem and what was understood. Have you come to have, over the years, any particular

different views about the fallout issue at the test site than you did at the time, as far as dangers or effects of radiation?

Yes. At the time when I went out there, I didn't know anything about radiation, and since that point learned that radiation can be dangerous and can kill you. If they were to explode an atomic bomb in the vicinity, I wouldn't be worried about anything but radiation. I'm not terrified of it but I think it's a lot more dangerous than people thought it was, and they're taking more pains now to correct the situation and to control it. But as I say, I went out there completely innocent.

[00:55:00] *Right. Well, those really were the early days.*

They sure were, yes.

I mean that was less than ten years after the first bombs.

That's right.

Now what did you do when you went back? You continued to work at the University of Illinois?

Yes, I worked there for another year and then I transferred to Michigan State University. I taught at Michigan State University for about ten years. There was a group in Cincinnati [Ohio] known as the Cincinnati Training Facility and it was looking for a microbiologist to train state people all over the United States in dairy and food microbiology, so I accepted an assignment with the Cincinnati Training Facility. And a year or two after I joined the Cincinnati Training Facility, why, the Food and Drug Administration bought them out, I guess, or took them over, at least, so I ended up in the employment of the Food and Drug Administration.

Oh, I see. But in Cincinnati.

In Cincinnati, right. And I was lucky. I have lectured in every state in the union on food and dairy microbiology and public health.

Interesting. Now the dairy thing raises a question for me. You know there was concern about the milk supply in Nevada and Utah because of the atmospheric testing. Were you ever involved or did you have any thoughts about that whole question?

No, never bothered me, but I can see where it would've been a problem. Undoubtedly there was radioactive milk somewhere around. The levels I don't think anybody knew. There was a program established through the camp to test milk in the area, you know, from Nevada, all around, Utah and everywhere. I never saw any of the data, but there was a radiation exposure in milk and dairy products underway, a study of some sort.

Right. Because you do get stories, we do get stories of people living there, that they were told, after certain tests, to dispose of the milk.

Well, I'm sure that was true and I'm sure it was a good idea and I'm sure it was necessary. Some of those cows, animals, I'm sure, were radiated.

And what are your thoughts now about this whole sheep question, because you mentioned that at the beginning. Do you have any further thoughts about what that possibility might've been there?

Well, yes, later on we were told that the sheep were burned by radiation.

Later.

Yes.

When was that later?

Probably at my second tour of duty at the camp. Yes, the information was flowing a bit more freely and so we were told the sheep were probably burned.

OK. Your second tour of duty. So you went back after Teapot?

No, my first tour of duty was the training program. The second tour of duty was on the detonations.

OK. Sorry. So even by that time, that's not very much long after.

Yes. I don't know how well it was publicized. At least we at the campsite knew it was probably a burn. I don't know about the public being informed at that point. We didn't even get a newspaper, I don't think.

Yes. OK, that's interesting.

Well, we've gone close to an hour. I don't want to take up too much more of your time, but this is extremely interesting. Are there any other, you know, memorabilia or articles or anything that you want to tell me about that you've kept?

Did you receive a copy of a letter I sent November 14th to the museum?

No, because, you know, I'm really separate from the museum. I'm at the university. But if you sent a letter there, I will speak to the people there about getting a copy of it.

Oh, well, I can send you a copy.

Please do.

I'll send you a copy that covers some of the material we discussed here in a little bit more detail, but I'll send you a copy of it and then if you have any further questions, why, we can get together again sometime or other.

That'd be great. Let me just ask you a short question about what it was like for you to go back.

I'm assuming that you hadn't been back or thought about these things for all these years, is that right?

Well, I hadn't been back, that's correct, in all these years.

Well, I'm not saying—well, of course, you thought about them, but what was—?

[01:00:00] On occasion people would ask me about it, you know, I hear you been out there, what was it like.

Right. So what was it like to come back and see the museum and be back in Las Vegas?

Of course, there was no museum there when I was there. I was rather surprised that the museum did not know much about, nor did the tour guide, know much about what happened before 1961. On the tour, little was mentioned about Yucca Flats and Frenchman Flats, where all of the activity I witnessed took place. The one gentleman who sat in front of me on the bus, about my age, saw three atomic bombs go off before I did. He was sent out by the Army and he drove water tanks all over the place, and he saw three atom bombs. But I don't think anybody else on that tour knew anything about atomic [atmospheric] explosions except just the two of us, which kind of surprised me, having been there when it was really active, you know what I mean? And this was very calm. I saw a couple of radioactive sites, they were posted radioactive sites, and they reminded me of my tour of duty out there. I was a little disappointed that they didn't take us to the headquarters, to that little building I was talking about. But see, they don't know much about what happened before 1961. And other than that, I think it's a good idea. I think there'll always be some people interested in going to see what happened, where they exploded bombs. I expected to see a couple of old buildings that were standing when I left that had been exposed to radiation after a bomb, but they weren't there. I think it was more in line with what we are now doing atomic energy-wise than what we did atomic energy-wise prior to that date. I think they're trying to educate the people as to what we're doing now and not forget but overlook, at least not emphasize, what they did in the past about spreading energy all over the place. I'm sorry I didn't know about your operation when I was out there. Yes. My son, I guess, is interested in it, so he set the whole thing up.

Yes, he e-mailed me and I'm glad he did.

He's the one that's responsible for all this.

Let me just make one comment, which is I'm glad you made the point about all the activity because, of course, when I've been out to the test site, it's so deserted, and I've really asked people to describe to me what it was like when all this action was going on.

Right. I stopped and talked to two guys out there when we were on break, and I asked them how long they'd been out there and did they know anything about earlier atomic shots, and they said no, we're just radioactive guys out here and we're studying something or other. So I was like you. It's completely different. There's two eras, the era before that date and the era after that date.

Right. Well, that's right because there was the moratorium and then when testing resumed and then quickly went underground.

Yes, right, absolutely. I think it would be interesting to—there was three people from California who actually plagued me, plagued me to go out to visit and wanted to know everything I knew about the tests: what color were they, how big were they, how many did you see. Before I went, the three of these people from California stopped me and even at the museum stopped me and wanted to ask me questions about, I'll call them "the old days." I think maybe they ought to have a little bit more of the old picture in there to supplement the new.

Right. Well, our project is at the university and of course we are colleagues of the people at the museum, which is why they gave you my card. But I've made a big effort and I think it's such a huge story and you only have so much time and so much funding, let's face it. But one of the reasons I wanted to talk to you is that you were there early in a very specific role and I think that that really adds to the historical understanding, which is my job.

[01:05:00] Yes. Well, if I had my choice and knew about your operation, I would've rather have spent time talking with you than have gone to visit the site.

Well, with the wonders of modern technology, it's always nicer to be face to face but this is a good second choice.

Yes. Where are you located in Las Vegas?

We're at the university.

I mean but where is the university located?

It's about five minutes from the museum by car. We're right next door to the museum.

[Brief discussion about location of UNLV and logistics of interview deleted]

I just had one quick question about the spelling of names so my transcriber will be happy. You said there were four of you on duty during that large exposure. You said Kaufmann. Seal? How do you spell that?

S-E-A-L.

Just like I thought. And who were the other two?

I know Seal is a Public Health Service man. Harris, I don't know him at all. Seal was with me in my car. He was riding in my car at the time. Harris, I don't know who he is. And Coleman, C-O-L-E-M-A-N, I don't know who he is. The name is familiar from around the camp. They may have gone another route somehow or other, but they were exposed to a rather high level at the time.

Yes. There's a physician named Harris, but I don't know if that's the same guy. Harris is a pretty common name. What was Seal's first name?

Oh, gosh, I can't think of it.

Don't worry about it. We can—

All I remember is Public Health Service.

We'll find it if we can.

Yes. Seal, Harris, and Coleman. And Seal was in my car.

OK. And Coleman and Harris were in another car?

Yes. I didn't know until I read this that they were even on the same route as we were, or in a similar area that we were in.

OK. That'll be an interesting thing for me to try to track down.

OK, I'd be interested in knowing it.

I'll let you know. Any other final things before I go into some of the nuts and bolts about what happens next?

No, I think not.

OK. Then what I'm going to do is turn off the recorder, get back on the regular phone, and I'll talk to you about what happens with the transcript, et cetera.

OK.

And I want to thank you very much. This was extremely helpful, and you're very articulate and I learned a lot.

Glad to.

[01:07:53] End Track 2, Disc 1.

[End of interview]

TO: ALL ZONE AND MOBILE PERSONNEL February 23, 1955
 FROM: Mel Carter
 SUBJECT: Shot I and II

For your information and to serve as a basis for public discussion, this brief report has been prepared. It includes general shot information, specific monitoring results, and a map indicating the direction along which fall-out occurred.

<u>Shot</u>	<u>Name</u>	<u>Date</u>	<u>Time</u>	<u>Type</u>	<u>Location</u>	<u>Direction of Cloud</u>
I	Wasp	2/18	1200	Air Drop	Yucca	Southeast
II	Moth	2/22	0545	Tower	Yucca	Southeast

Monitoring for shot I was done along Hwy. 95 and on the roads in and around Charleston Park. The highest readings obtained were 4-6 mr/hr. Our peak reading corresponded to an Effective Biological Dose (EBD) of 70 mr. (We found it difficult to plot a fall-out map from such low readings.)

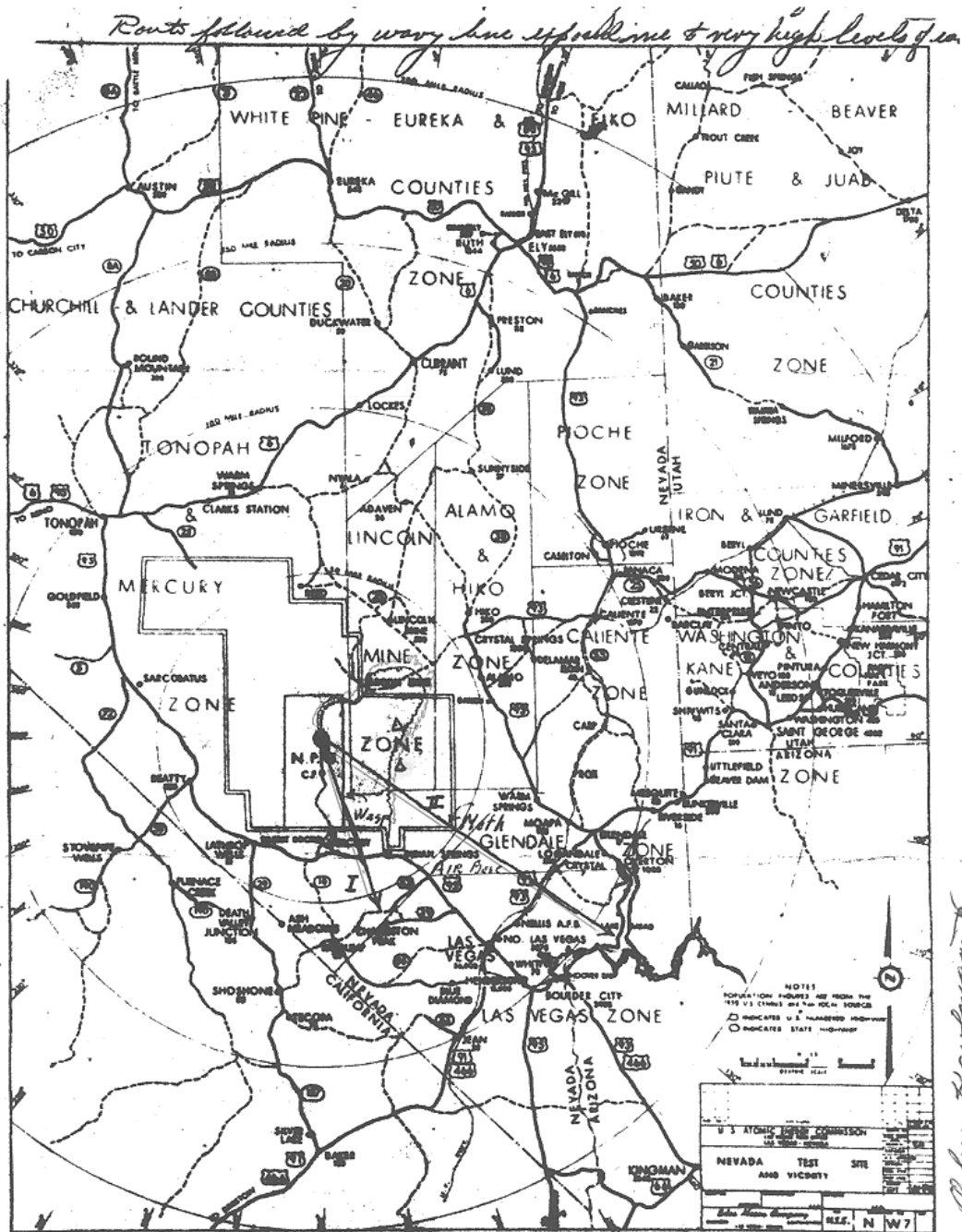
Monitoring for shot II was done on Hwy. 95, 93 & 91 between Las Vegas and Glendale Junction, the game refuge road north from 95, the road north from Indian Springs through the gunnery range, and other roads in this general area.

Business picked up over shot I, as fall-out occurred on Hwy 91 and 93 just south of Dry Lake. The maximum meter reading reported was 60 mr/hr. This reading corresponds to an EBD of 410 mr. Little, if any, fall-out occurred in populated areas. (Good shot)

Higher readings (200 - 310 mr/hr) were obtained north of Hwy 95 on the game refuge road and on the road from Indian Springs. No EBD's have been calculated. There were no people in such areas other than Kaufmann, Seal, Harris and Coleman.

(By the way, Seal and Kaufmann returned with many trophies - old pieces of bombs.)*

We hope this is the type information we have had several popular requests for. Also, sleep permitting, we hope to have such information out sooner in the future.



Wiggly line was moderate route I took thru the Poor-dock country. As you can see there are no roads indicated. Δ Bombing range of miles A.F.B.

Oliver Kaufmann

February 23, 1952

ALL SOURCE AND FIELD PERSONNEL

FROM: Maj Carter

SUBJECT: Shot I and II

For your information and to serve as a basis for public discussion, this report has been prepared. It includes general shot information, specific location readings, and a map indicating the direction along which fall-out occurred.

Shot	Name	Date	Type	Location	Direction of Cloud
I	Wasp	2/18	Air Prop	Yucca	Southeast
II	North	2/22	Tower	Yucca	Southeast

Monitoring of Shot I was done along Hwy. 95 and on the roads in and around Charleston Park. The highest readings obtained were 4-6 mr/hr. Our peak reading was recorded to an elevation biological dose (EBD) of 70 mr. (We found it difficult

Oliver W. Kaufmann

* Radio active material - high level of exposure

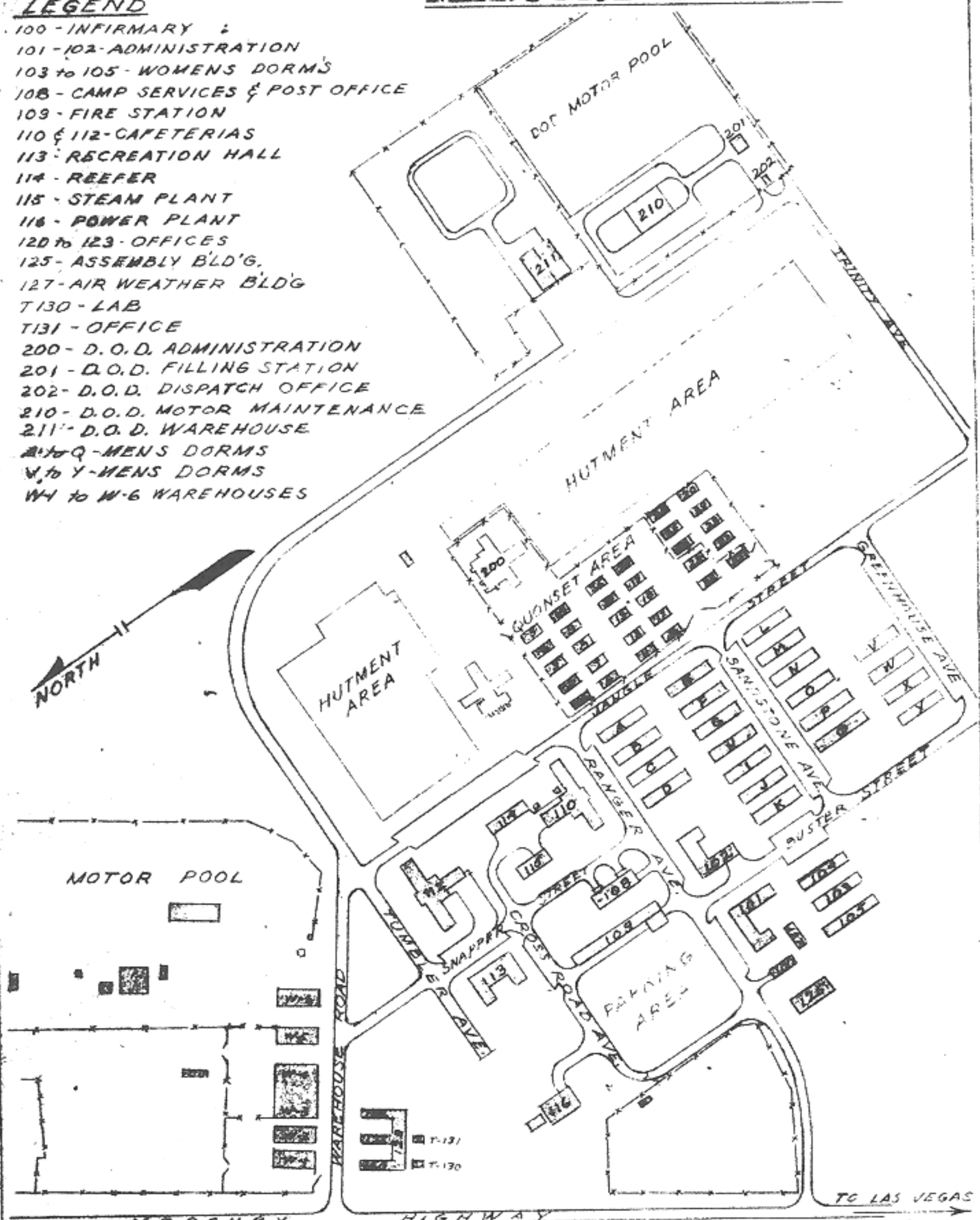
"old pieces of bombs" refers to the high level of radio activity I was exposed to - - - not actual pieces of a bomb.

From the map it is apparent that I passed directly under the radio-active cloud in an effort "to make contact with the cloud" so that headquarters could calculate some fallout

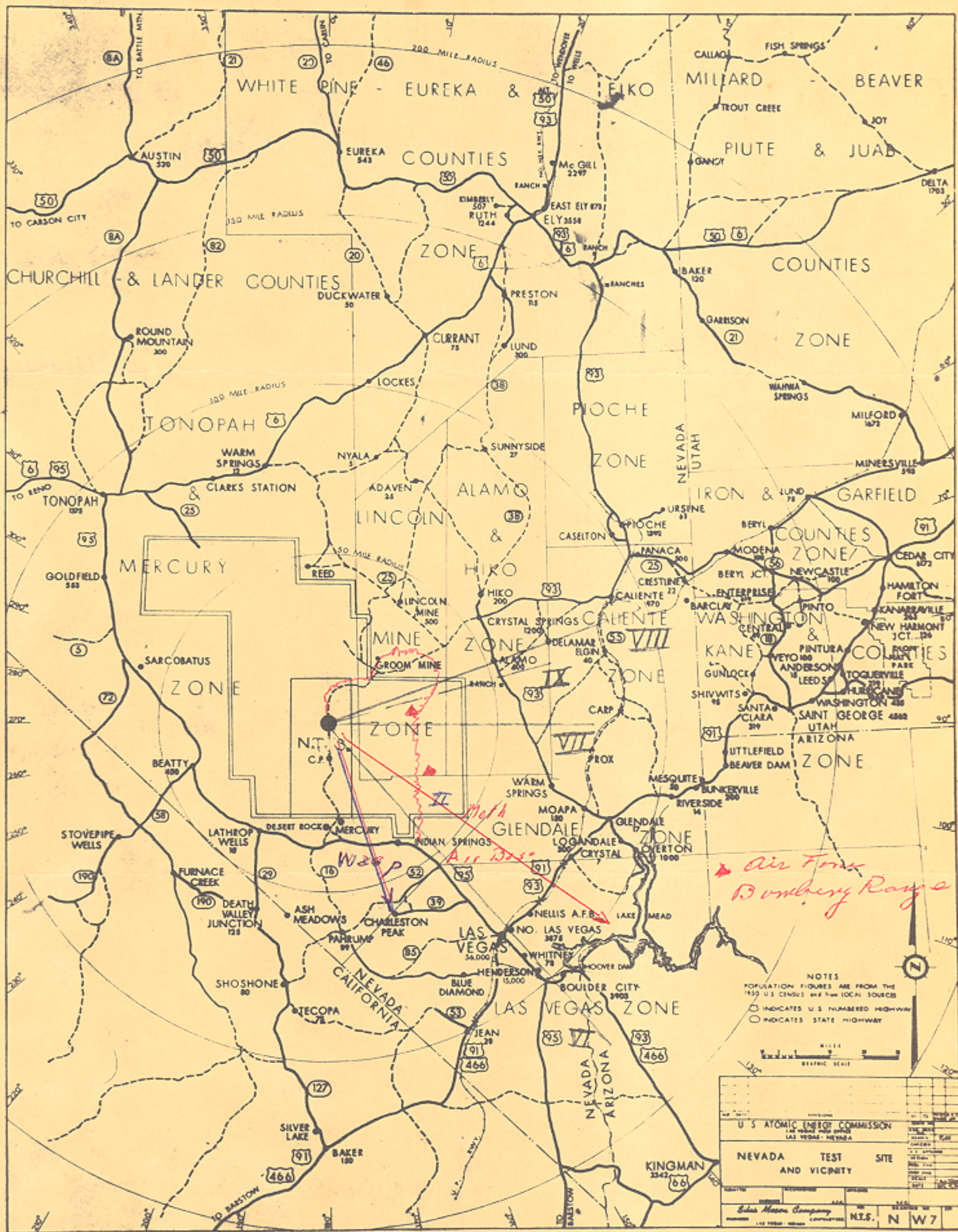
MERCURY NEVADA

LEGEND

- 100 - INFIRMARY
- 101 - 102 - ADMINISTRATION
- 103 to 105 - WOMENS DORMS
- 108 - CAMP SERVICES & POST OFFICE
- 109 - FIRE STATION
- 110 & 112 - CAFETERIAS
- 113 - RECREATION HALL
- 114 - REEFER
- 115 - STEAM PLANT
- 116 - POWER PLANT
- 120 to 123 - OFFICES
- 125 - ASSEMBLY BLD'G.
- 127 - AIR WEATHER BLD'G
- T130 - LAB
- T131 - OFFICE
- 200 - D.O.D. ADMINISTRATION
- 201 - D.O.D. FILLING STATION
- 202 - D.O.D. DISPATCH OFFICE
- 210 - D.O.D. MOTOR MAINTENANCE
- 211 - D.O.D. WAREHOUSE
- W to Q - MENS DORMS
- V to Y - MENS DORMS
- W4 to W-6 WAREHOUSES



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NOTES
 POPULATION FIGURES ARE FROM THE 1950 U.S. CENSUS AND FROM LOCAL SOURCES
 ○ INDICATES U.S. NUMBERED HIGHWAY
 ○ INDICATES STATE HIGHWAY

Scale: 1 inch = 100 miles
 Graphic Scale

U.S. ATOMIC ENERGY COMMISSION		LAS VEGAS, NEVADA	
NEVADA TEST SITE AND VICINITY			
DATE	REVISION	SCALE	PROJECT
1-15-54		1:50,000	N.T.S. NW7

*Red arrow indicates direction of glacial drift.
 Route shown by wavy line, red line espoused me to very high level of radiation.
 Wavy line (over) indicates route I took thru "boulders". There are no roads.*

TO: All Zone and Mobile Personnel (also Departees)

FROM: Mel Carter

S. Cox participated in these shots

SUBJECT: Shot VI, VII, VIII, IX

For your information and to serve as a basis for public discussion, this brief report has been prepared. It includes general shot information, specific monitoring results, and a map indicating the general direction along which fall-out occurred.

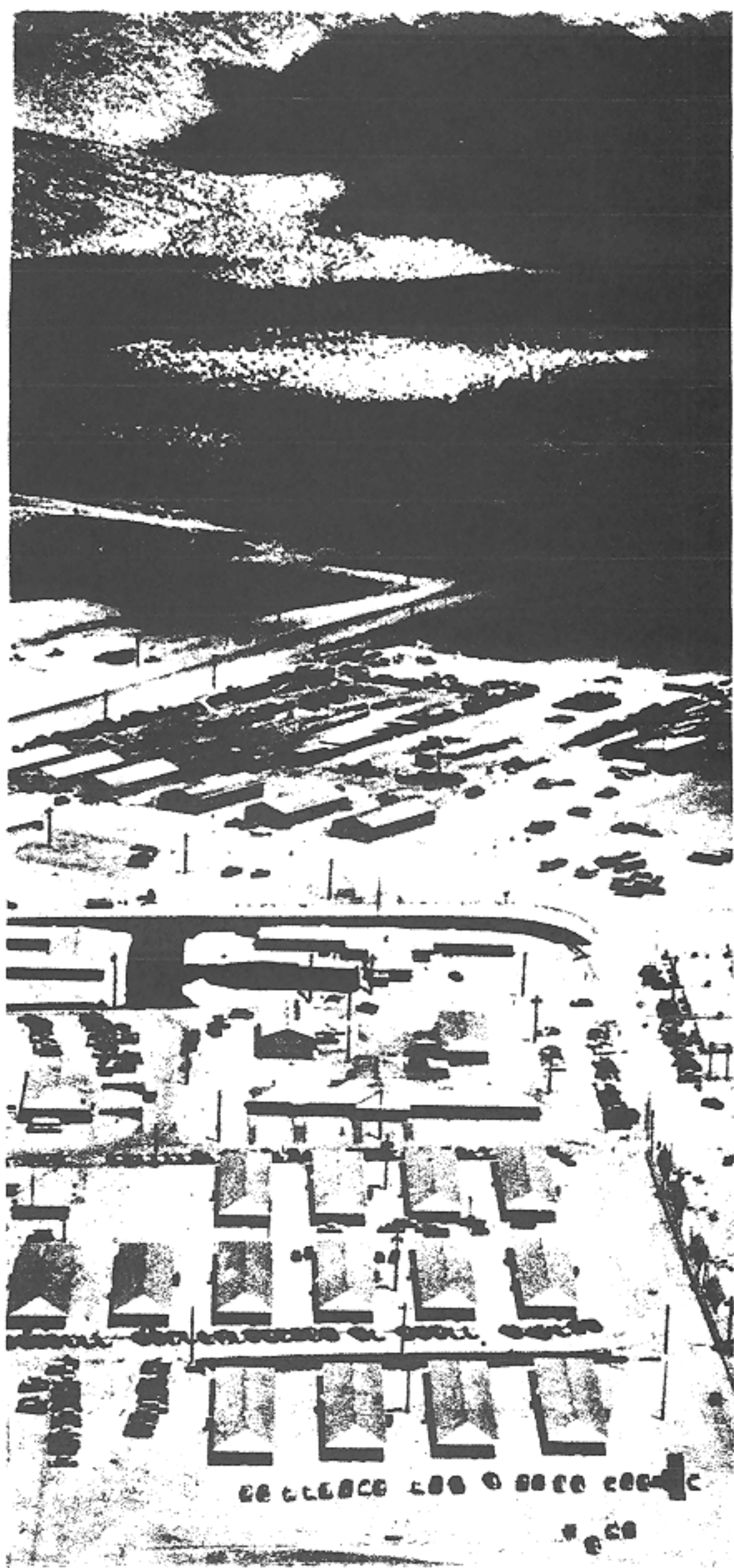
<u>SHOT</u>	<u>NAME</u>	<u>DATE</u>	<u>TIME</u>	<u>TYPE</u>	<u>LOCATION</u>	<u>DIRECTION OF CLOUD TRAVEL</u>
VI	Bee	3/22	0505	500 ft tower	Yucca	Southeast
VII	Ess	3/23	1230	Sub-surface	Yucca	East
VIII	Apple	3/29	0455	500 ft tower	Yucca	Northeast
IX	Wasp ¹	3/29	1000	Air drop	Yucca	Northeast

For shot VI, monitoring runs which indicated activity substantially above background were made on US 93 between Las Vegas, Nevada and a point 30 miles southeast of Boulder City, Nevada; along US 91 between a point two miles northeast of Nellis and the intersection of South Fifth St. (Las Vegas proper); in North Las Vegas, Nevada; in the northeast sector of Las Vegas; on the Game Refuge Road north of US 95; along the desert road north of Indian Springs; and on several of the desert roads east of Nevada Test Site. (As a specific general comment, "activity" levels were about the same as usual for those leaving NLVC). The EBD was a few hundred in North Las Vegas (Editor's note: I live there)

Monitoring runs for shot VII which indicated activity substantially above background were made on US 93 between 21 miles south of Alamo and Glendale, Nevada; along US 91 between 15 miles west of Santa Clara, Utah and Glendale, Nevada; on the desert road north of Indian Springs; and along several of the desert roads east of Nevada Test Site. (A novel shot, but normal or sub-normal fall-out.) EBD not computed as yet, but should be less than 200 mr for any populated (population for this purpose does not include female Gila Monsters) area.

Monitoring runs for shot VIII which indicated activity substantially above background were made on US 91 between St. George, Utah and Cedar City, Utah; along US 93 between Alamo, Nevada and Pioche, Nevada; on Utah 18 between Central, Utah and Beryl, Utah; along Utah 56 west of Cedar City, and continuing on Nevada 25 to the junction with US 93; along Nevada 25 in the vicinity of Lincoln Mine, Nevada; on the desert road north of Indian Springs, Nevada; and along several of the desert roads north and east of Nevada Test Site. The EBD for Alamo, Nevada was approximately 1.3 r.

As shot IX was the number two show of a double feature program, specific sampling was not done. However, any activity would have been included in the shot VIII samples. It is doubtful if measurable fall-out occurred.



SAGEBRUSH AND BARRACKS—Mercury looks like a big construction camp. The symbolic shadow in this air view is cast by a conventional, non-atomic cloud.