March 1, 2000

Lori Azim
Sr. Advisor for Health Policy, DOE
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Lori:

At the meeting in Las Vegas, your gave me your card, and asked me to call you. I have been unable to reach you by phone, but left messages on your voice mail.

I am a widow of one of those NTS workers. The attached work history and DOE/Sandia Re-Entry Guidelines will show that my husband, Glenn A. Clayton, was exposed to numerous types of radiation, including Beryllium, which the DOE is especially concerned about at this time. (Please see page 6, section 3d of the Re-Entry Guidelines).

Glenn dictated his 10 page work history to me not long before his death in June, 1999. He was proud of his job at the NTS and felt the work being done at the NTS was critical, and with his job as Leader of the Re-Entry team, he was doing his part for our country in winning the Cold War. So, when he was asked to "lose" his film badge because of radiation over-exposure, he did that. And when he had to get a waiver from DOE, Washington, D.C., because of radiation over-exposure, he did that, and continued working in very hazardous areas.

Glenn suffered with 6 different types of cancer. They were:

1992 Small cell bronchogenic carcinoma (treated with chemotherapy and radiation)
1992 Pituitary tumor resection, (transsphenoidal craniotomy)
1994 Melanoma of the posterior neck (surgically removed)
1995 Melanoma of the ear (surgically removed and skin grafted)
1995 High grade transitional cell carcinosarcoma (removed bladder)
NOTE: Dr. Freedman stated the cause of the cancer looked like radon exposure.
1997 Pituitary macroadenoma (right pterional craniotomy of the pituitary)
1998 Squamous cell carcinoma with necrosis, left lung (chemotherapy)
NOTE: Dr. Kingsley stated that the cancer was caused from radiation exposure.

Glenn passed away June 5, 1999. For 1999 alone, our medical expenses, over and above Medicare and our supplemental insurance, was over $6,500. Whatever you could do on Glenn's behalf, would be greatly appreciated.

Very sincerely,

Dorothy Clayton

Dorothy Clayton
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I was employed by Reynolds Electrical and Engineering Co., Inc., from June 15, 1958 until January 2, 1987.

I wish to address the first 15 years of my employment at which time I worked in the tunnels. I worked in the capacity of Miner, Shift Boss, General Foreman, Asst. Superintendent, Superintendent and Project Manager during those 15 years. I was responsible as Leader and Instructor in use of underground oxygen breathing apparatus, specifically the McCaa. I also was responsible for all the training on the Test Site for personnel who performed re-entries into the tunnels for safety conditions to help with instrumentation and data recovery relative to the nuclear test. We had very little success of containment in the tunnels in the early years from 1958 to about 1968. During that period of time some severe radiation problems existed for the personnel involved in the re-entries.

During this period of time I led the re-entries on numerous events, including: Evans at B tunnel, Feather at B tunnel, China at B tunnel, Yuba at B tunnel, Red Hot at G tunnel, Doot Mist at Area 16, Mini Mist at E tunnel, Tiny Tot at Area 15, Piledriver at Area 15, Marshmellow at Area 16, Gumdrop at Area 16, and Double Play at Area 16. None of these shots, with exception of Yuba and Piledriver contained. Yuba contained to a degree. (I will relate to that later).

The first event I had experience with re-entry was Tamalpai in 1958 at B tunnel. When the initial re-entry was made, the re-entry team was advised that there was no radiation problems, no significant problems underground, other than maybe the lack of sufficient oxygen. It didn't take long to find out that was not true. When the re-entry team

was in the tunnel, they were utilizing a lit candle to detect insufficient oxygen, which is a normal practice for underground miners, and it created an explosion which only by the grace of God the men excaped the tunnel. If the railroad track had not been laid through the blast door area, the blast door would have been sealed shut which would have prevented them all from being able to exit the tunnel. Subsequent to that event, it became necessary to rehabilitate the entire tunnel complex in order to get off the two following shots, Shasta and Evans.

While we were decontaminating the tunnel and removing the sandbags, etc., from Tamalpai they had an event on the level above, either at F tunnel or C tunnel, causing a large boulder to dislodge from above. The boulder landed on the ventilation stack of the fans at B Tunnel, rendering the fans inoperative. That ceased operation at the tunnel until it could be repaired. Reynolds Electric management asked me if I would make a trip up to the portal to where the fan was and see if it could be repaired. A rad-safe employee (I forget his name) and myself went up there. We each had two hour dosimeters us, and the rad-safe monitor carried a gamma detector. When we got to about 150 yards from the portal, the rad-safe monitor said he would stop there. The readings on his radector at that point were 14R. I told him I could not ascertain whether the fans were operable at that point and I would have to go on up to the portal, which I did. I looked at the fans and after much scrutiny, determined that the housing that covered the impellers on the fans had been dented enough that the impellers could not rotate. It took approximately 30 minutes to determine what damage had been done. I have no way of knowing how high the radiation level was at the

portal. I do know that the dosimeter which I carried in my pocket pegged out at 2R a long time before I reached the portal. Rad-safe monitor and I went back to the staging area and reported to management that we could rehabilitate the fans because only the housing was damaged. If it was straightened then the fans would become operative. Subsequently, the portal was decontaminated by various means to get the radiation levels down and the fans were repaired. The tunnel was decontaminated to allow re-entry and rehabilitation. Of course we recognized that 100MR per hour was considered a safe construction zone during that period of time Hard Tack Phase II Testing Program.

The second event I was involved in was Evans in B04 which was executed in September, 1958. It did not contain either. In fact, radiation levels were so high in there that we abandoned the tunnel back in the B04 area.

The moratorium on October 1, 1958 created several significant problems. We had to scale down our working people to, more or less, a maintenance level, or you might say, to retain a cadre of professionals who could expand in the event nuclear testing began again. During the moratorium numerous mining re-entries were made. All of them were very highly radioactive and we got quite a bit of exposure in those areas. We did a mining re-entry into Ranier wherein we excavated the tunnel back to ground zero, then sank a shaft down to the bottom of the cavity. We tried to determine the outline of the cavity and we could see it in various places by the glass that was formed by the nuclear detonation which was black in color, which was still highly radioactive. The Ranier shaft that we sank was highly contaminated with Alpha and it was necessary for us to wear respirators when we were

mining. However, severe working conditions gave considerable problems in effecting the mining. The temperature was exceeding 110 degrees and the humidity was 80 + percent all the time. The sweat from working made the mask slip around on your face, causing the mask to leak and you weren't breathing through the respirator. Secondly, the respirator, because of the moisture, the filters would get plugged which would not allow you to breathe. It was quite an ordeal in sinking the shaft.

Subsequent to this re-entry we all went down to E Tunnel which was the only other complex in existence at that time. They wanted to do some mining re-entry on the logan. As we mined back in through the logan area, we encountered seams and stratus that were exceeding 3R radiation and our only means of protecting ourselves from the radiation was by trying to put lead sheeting over these areas. I guess we did a pretty good job -- we never did know because no one told us.

Subsequent to the logan re-entry our crew went back to B tunnel. Lawrence Livermore Laboratory (LLL), in conjunction with Sandia had determined that they wanted to create a sphere at the bottom of a shaft which would be codenamed, "Linen", and would be 5KT high explosive test. While the plans were being made we spent time dressing down the tunnel. One thing that we encountered was that no one (including Rad-Safe), knew the amount of radon-thoron radiation. I was in B tunnel, B02 drift one afternoon with Troy Wade and a rad-safe monitor when the rad-safe monitor told us the radiation from the radon-thoron was exceeding 250,000 counts. We were wearing no protective clothing and the rad-safe monitor thought nothing of it.

While we were working on the shaft, LLL made a determination that they wanted to re-enter the Evans drift, B04. They had a sample back there they had to recover which was gold encased in lead. We set up a mine rescue team to go in and make the recovery. As usual, I led the mine rescue team. However, prior to going in, I talked to the experimentors who had installed this sample. They told me it had a one-eighth tracing cable which I could follow to the canister, and it was locked on with a one-quarter inch nut. They said I could take this cable off and then be able to remove this canister from a drill hole, and it only weighed about 25 pounds. We made the re-entry and I got back to the location of the canister, I found that it was a three-quarter inch cable and the nuts were three-quarter inch, and after finally getting that off, I found that the canister weighed in excess of 100 pounds. As I pulled it out of the hole, it fell with me, cutting my finger. I was able to lift it up and carry it to the main drift. We had an incident with one of the members who had sprained his ankle and they had sent in the rescue team for him with a stretcher. I asked him how he felt and he told me he could walk alright, so we put the sample on the stretcher and carried it out to the portal. One thing we found out much later was that the radiation we were dealing with back in the tunnel, the experimentors called, "bowl", was in truth tritium, and it was at a very high level. None of us were aware of this and we all got a good dose of tritium. LLL had the crew taking three urine samples each week, and they fed us salt tablets to assist in getting rid of the radiation in our systems. Sometime after this rad-safe, in conjunction with the AEC, and others, started giving us a 6 pack of beer to drink after work. They did find out, which was a very good thing, that one of the crew members would not drink at all, and it

showed the deterioration of the tritium out of his system was about flat line, and the rest of the crew showed a decay rate of about thirty degree angle down the chart. So the beer did a job of getting the tritium out of our system, however, what damage it did while it was in our bodies, no one knows. That was a major effort we did during the moratorium and when nuclear testing resumed in 1961, we had already started working on an event at B tunnel which was called, "Feather". At E tunnel they would be doing an event which was called, "Antler". Antler was the first one executed and I was on the back-up re-entry team and Frank Soleguei led the initial re-entry team. As they neared the portal they had a secondary explosion that blew out of the portal. We never did find out the cause. The rad-safe monitor reported on the net that the water in the drainage pond, just off the dump at E tunnel, right next to the highway, was reading 72R.

On the Feather event, one thing that was different, we decided to try and maintain our ventilation so that we could turn our fans on, ventilate the tunnel, and get rid of the radiation into the atmosphere, rather than keeping it in the work area. A ventilation duct was laid on the mesa, and a drill hole from the tunnel to the mesa was made. When the event was executed, it was my job to go with two rad-safe men (but Security would only allow me to have one), to go to the mesa to ascertain if the ventilation system was functional. We got up there and the ground motion from the event had broken the ventilation pipe at many seams and it was rendered useless. So the rad-safe monitor told me to make my analysis of what I had to do and he would do more checking elsewhere. It stated it was pretty safe because it was only reading a few R, and the wind was blowing away from us. The rad-safe

monitor left, and while he was gone, the wind changed direction and was coming right over the ventilation pipe towards me, which I was unaware of at the time. When the rad-safe monitor came back, he made a report on the net to control below, and as soon as he told them the radiation levels, which were extremely high, they insisted they get me off the mesa immediately, because I had already exceeded my yearly dose at that time and I was working on a waiver then. It was suggested by a rad-safe supervisor that I 'lose' my film badge, which I did. We miners were always in fear of losing our jobs if we got too much radiation and could not work.

Our next event at B tunnel was, "Cheno" in 1962. At that time I had more radiation already than my waiver would permit. I had been on a waiver in 1961 and also in 1962. I was in charge of the operation so I had to do all of my work at the portal through a secondary person. I utilized Ernie Herdig who was a LLL employee to take my information to the underground shift boss.

Cheno was also an event which did not contain and gave us many radiation problems. The re-entry which I could not work on because of having too much radiation, was a slow tortureous process to get back to the tunnel and not much data was recovered because the underground area was contaminated.

In 1963, we started another event in B tunnel called, "Yuba". Yuba was a different configuration for an event with more thought given to containment. It is difficult to explain verbally the shape of the tunnel, but essentially it was two parallel drifts, sixty feet apart, going back to a cross-cut drift at the end where the device was placed. In the right parallel

drifts, we left about 30 to 50 feet of solid rock as a pillar between that and the working point. In that pillar the experminters imbedded cameras which would be recovered upon re-entry. The shot essentially contained, until we went back into the parallel drifts to do the recovery. When we started mining back through the right parallel drift pillar, we found that the drill hole where the power cables to the cameras had been placed, instead of being grouted full, was just plugged with a small amount of putty, which did not seal. We didn't recognize there was a hazard beyond this so all of us got an extreme dose again of tritium. In fact, several of the employees had to be sent to Donner Lab to get a full body count analysis. Subsequent to that, all mining that we had to perform, that is excavating the 50 foot of tunnel, had to be performed under air supplied equipment. This consisted of a full face mask, with a long hose that was attached to a regulator, which was fed by bottled air. The only problem we encountered there was in moving back and forth between tasks that seemed to occur, the miners were always tangling our hoses together so eventually we could not move until we stopped to straighten them out. However, we did mine out the tunnel in a very short period of time. We were able to recover the cameras, some in reasonable condition, others were damaged. I do not know the results of the reports from that test.

After that period, I moved to Area 15 to take over an operation called, "Piledriver". At this point in time, LLL had basically left the tunnels and gone to the flatlands for their testing in drill holes. DNA did the tunnel events from that point on essentially. They did have LASL and LLL provided the devices so they had to be participants in the events.

DNA did much more work to contain the tests and from test to test, the success rate improved dramatically.

Piledriver was executed June 6, 1966. It did contain, however, it completely tore up the access shaft to the collar. It upheaved the ground, at the surface, 12 feet back around ground zero which was 1500 feet from the shaft collar, so it did a lot of surface spall. We did mine back down into Piledriver and re-entered all the test drifts to ascertain the survival of the different configurations of hardening that we had done.

During Piledriver we started a project called, "Tiny Tot", which was a cavity experiment. This was at the bottom of a shaft, at the end of a small drift, and a cavity was excavated that was about 60 feet across and 135 feet high, tilted on a 34 degree angle. It was to simulate a surface detonation on the ground. It pretty well contained and we mined back in, through the stemming area, looked at the cavity area, and everything was still intact for the most part. It was considered a successful event.

During the timeframe from 1963 through 1968 or 1969, I led re-entries in Area 16, which were the following events: Marshmellow, Gumdrop, and Tiny Tot in Area 15. I participated in the re-entry at Midi Mist at E tunnel. I led the re-entry at Door Mist in Area 16. These events pretty much contained, however, they all had radiation leakage at some point. One of our main problems with radiation leakage was through the cables. Eventually gas blocking was installed in the cables which precluded this, but at the outset, we had a lot of leakage of high radiation levels coming through the cables themselves.

I spent my time through 1970 at the tunnels, making re-entries, driving tunnels, and managing tunnels. In 1971, I was promoted to Department Manager and went to Area 3 to take over the Los Alamos Laboratory level of construction effort.

One thing of note -- from the period of 1958 through 1968, we had no formal guidelines to make re-entries. In 1968, Sandia Laboratory published a manual titled, "General Tunnel Re-Entry Procedures for Department of Defense, Sandia Laboratory Nuclear Tests". I am enclosing a copy of this publication. As you can see, even with these guidelines, we were still permitted to go into highly hazardous areas.

Also, over a two year period, in preparation for, and removal after the tunnel shot events, I had excessive exposure to ground up asbestos. We placed the asbestos, by hand, with no breathing protection.