July 23, 2008 Public Meeting Summary with Public Comments / Questions & Answers

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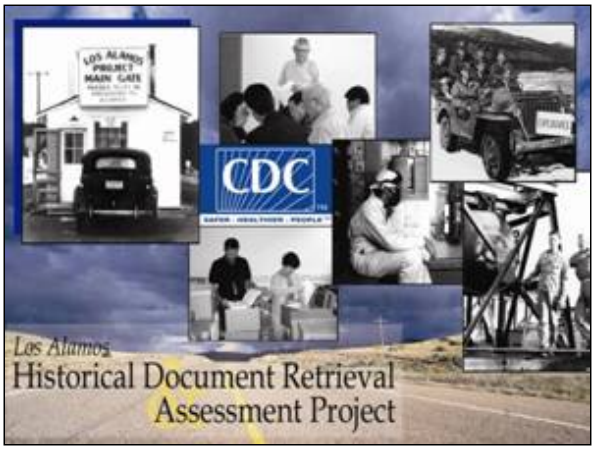
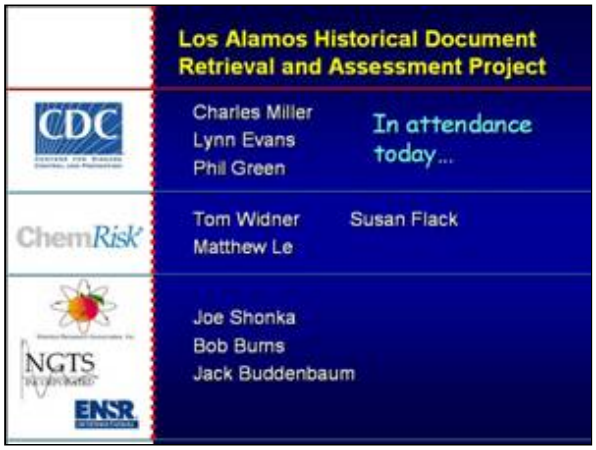
Public Questions and Answers

Summary of Presentations





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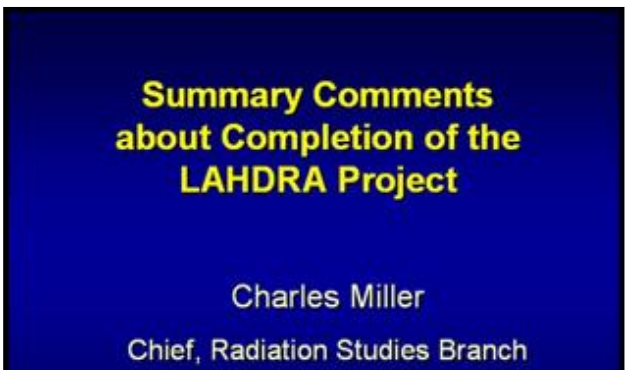
Charles Miller, CDC: Welcome to tonight's meeting. We appreciate everyone being here. I am Charles Miller. I am from the CDC in Atlanta. And with me I have Ms. Lynn Evans and Mr. Phil Green. Phil is our contracts officer.



Slide 3 of 53 and Photo of Charles Miller

Tonight we are going to give you a progress report on the Los Alamos Historical Document Retrieval and Assessment Project, or LAHDRA as we call it. Our contractor, ChemRisk, lead by Tom Widner, will be giving you that presentation and talking a little about it.

Normally at this point, we would have a new draft report for you to look at. Tom and ChemRisk have, from the very beginning, been pulling together all the information they have found and including it in the draft reports for this project. We have posted each iteration on the Internet for everybody to look at. And please understand, these reports are drafts. They are going to change. It's a moving target, but we want you to see exactly what we see. We want to make this as open a process as we can.

Well, there is no new version this year just yet. And the reason is very simple. We have encountered a number of delays in trying to get our work done at Los Alamos National Laboratory (LANL) over the last year or so. We received no documents that we've requested since February. None have come out of the Laboratory.

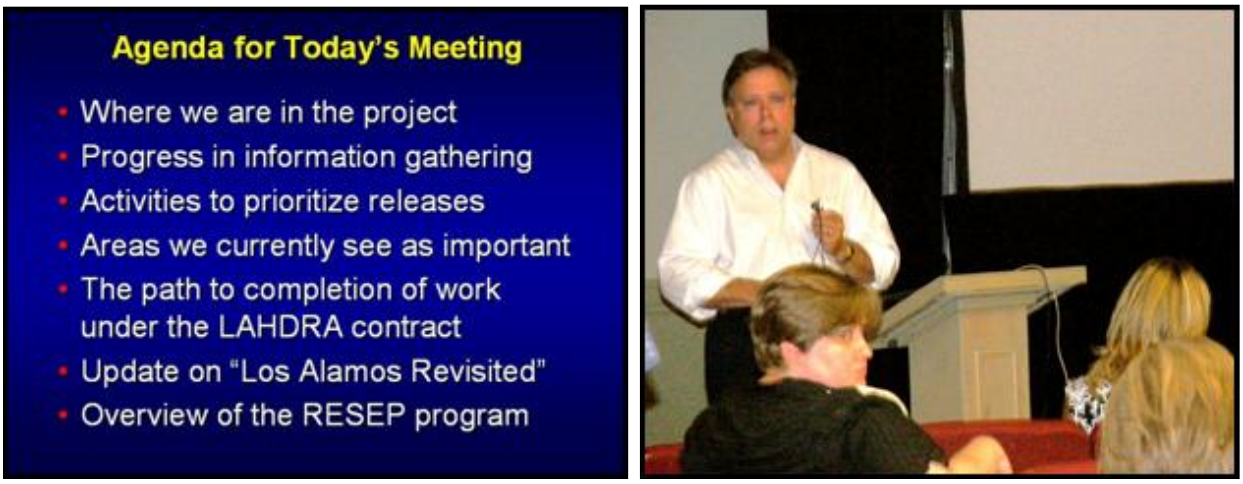
Tom has been working with lab officials to try to schedule work to go after more documents and more information and that has been an issue— we've had difficulties completing that scheduling. Our goal was to actually complete the majority of the document retrieval work by the end of this September. That's not going to happen. Now I am hoping that we can have it done by the end of December. And that will depend on how rapidly we can remove whatever issues we have left.

Then a final report will be developed in draft form. We will post it on the Internet and make it available to you because we want your comments on that final report. The CDC will also convene a group for a peer review, a panel of professional experts to look at the report and give us their opinion as well. Their comments will be released to the public and then we will use your comments, their comments, and our internal comments to produce a final report which will be available to you and to everyone else.

Once we have the final report out, then decisions can be made as to what if anything further we can do. Is there anything that needs to be done? Are there issues that need to be resolved? Can they be resolved? It may be that there are questions that we would like answers for, but we just simply can't find the documentation to answer them any better that what we've already done. Some questions simply can not be answered. We're here to gather information, and as ChemRisk has done that they have shared it to both you and to me. So, that's where we are at. That's why we're here tonight. We're will be here to answer your questions as long as you need us to be. But right now I am going to turn it over to Tom to talk about where we are at.

Photo of Audience

Tom Widner, Principal Investigator: Thank you Charles. Before I get started I want to introduce some of the other project team members that are here. Susan Flack is in the back. You might have spoken with her when you entered the room. Matt Le is a health physicist from ChemRisk. We have a number of sub-contractors on the team. Representing them today are Joe Shonka, Bob Burns and Jack Buddenbaum. We've had a core team of about a dozen individuals with Q-clearances that have reviewed documents over the last nine years.



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And what I am going to do today is summarize for you some of the areas we've talked about before. In some areas, we've found new information since last summer. I will describe the process we are going to go through to bring the work under this contract to a close.

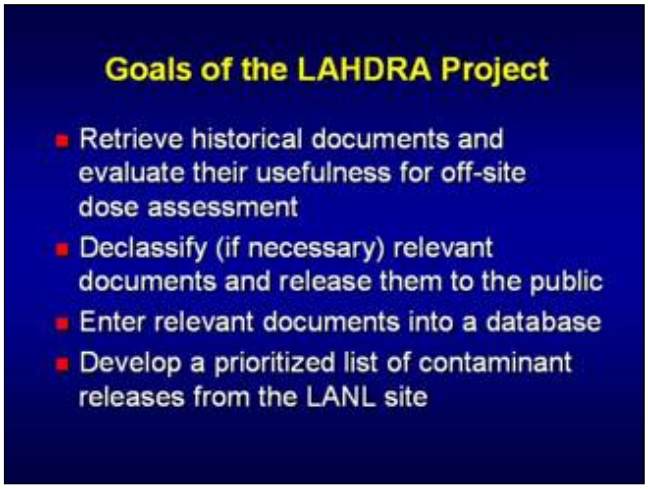
Charles mentioned the first topic already-where we are in the project. I am going to describe for you some progress we've made since last July in information gathering.

Keep in mind this work we've been doing here at Los Alamos for a number of years now is all centered on information gathering. In a couple of instances, we've gone a step further to prioritize releases. While we've now started some screening-level assessments of certain releases, the main focus of our work has been on information gathering.

I am going to discuss some areas that have particularly attracted our attention as areas that we think could have been important historically for off-site releases. I am going to talk about the path toward completion which Charles has touched on. Then, we're going to turn it over to Peter Malmgren, who has been working parallel which

our project, partially supported by the CDC and our project, with his "Los Alamos Revisited" oral history project. You can see some of Peter's photographs along the side walls in this room. They are very interesting, and he will give a brief overview of the project and what he has found.

And then Elizabeth Kocher from the RESEP program will give you an overview of a program that Health and Human Services supports that is also addressing members of the public who could have been exposed from various sources of radiation exposure over the years. It's not a program we know very much about, so we're looking forward to hearing her summary so you can all hear how that program possibly relates to our project and the EEOICPA energy worker compensation project. These programs all have different focuses, and we just want to make sure everybody understands what the focus of each is.



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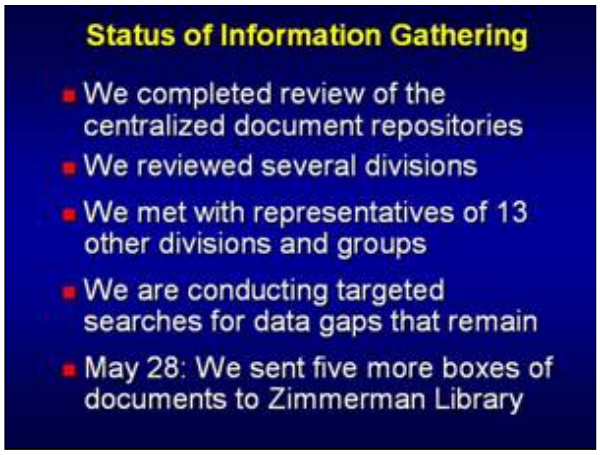
I always like to start out reviewing project goals because sometimes there are new people in the audience. Our main charge is to retrieve historical documents and evaluate their usefulness for off-site dose assessment. This includes releases of chemicals and radioactive materials back to the beginning of the lab in 1943. We're focusing on off-site, public exposures– not worker exposures– even though a lot of what we're gathering is also relevant to worker exposures and many workers and their families have found our information to be useful.

We declassify the records we find, as necessary, and release them to the public. This is one of the great benefits as we see it– sharing information that otherwise would not be available to the public. Relevant information is entered into a project information database, and we are working on developing a list of contaminants that were likely released. As best we can with the information that we have, we will prioritize the releases so that we can tell the CDC and you which ones might have been important in terms of off-site health hazards, which ones were likely not important, and which ones have so little information available that we can't really tell.



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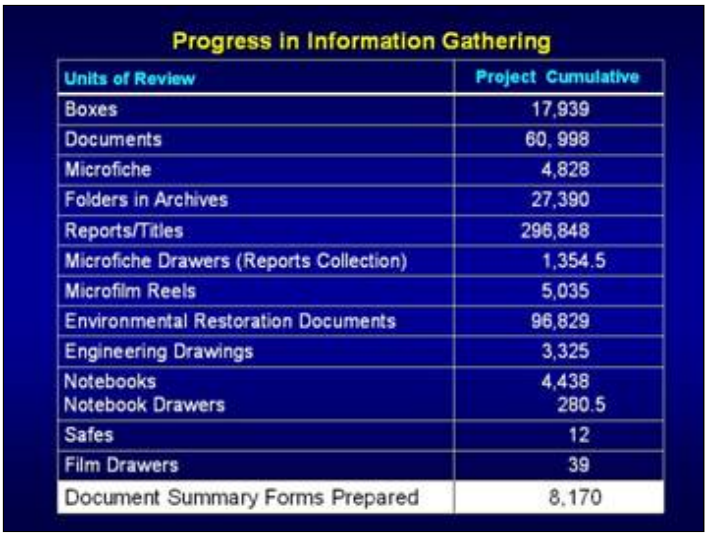
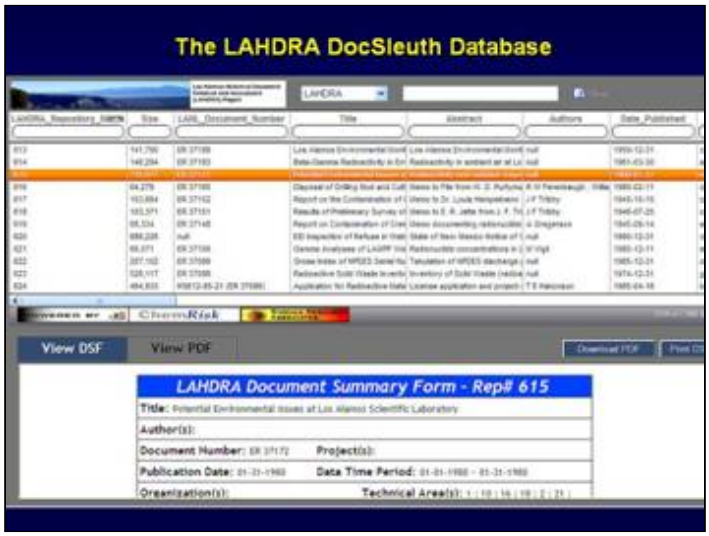
Over a year ago we completed our review of the centralized document repositories, those being the LANL Record Center, Archives, and Report Collection. We have since reviewed holdings of several divisions, most notably the nuclear weapons divisions, the LANSCE division with its accelerator operations, and most recently the environmental stewardship division that includes environmental restoration and related activities.

Back in February we held a series of meetings with 13 other division and group leaders. We wanted to interview the 13 groups and divisions that we thought would be most likely to have information relevant to off-site releases. We took about 92 pages of notes and we set up a series of activities. We are planning a series of targeted information gathering visits between now and the end of the year. These are targeted searches. We are looking for information that addresses key data gaps that remain.

Documents we have collected are available through a controlled access, Internet based tool called DocSleuth. We also keep paper copies of all the documents that are released to us at the Zimmerman Library at the University of New Mexico in Albuquerque. In May we sent another five boxes of documents to that library.

This is a summary of the information gathering since the project started. The most important one is that we have generated, as of last count, 8170 documents summaries that are now reflected in our database.





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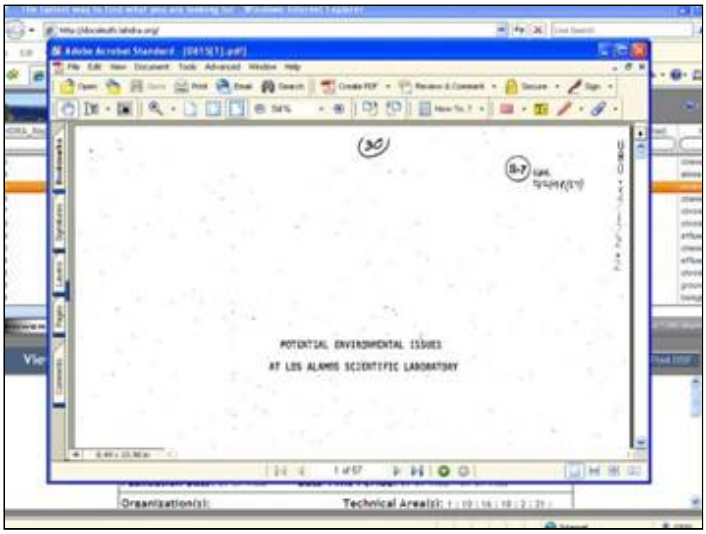
After we receive documents, we scan them and make them available in conjunction with the database. This is a screen shot of our database, with which you can search the documents in the database by their bibliographic information from the document summary forms. We found it to be a very useful tool to us within the project team and we have about 40 user accounts from local libraries other universities, other research groups within this country and England that have asked permission to look at some of our records.



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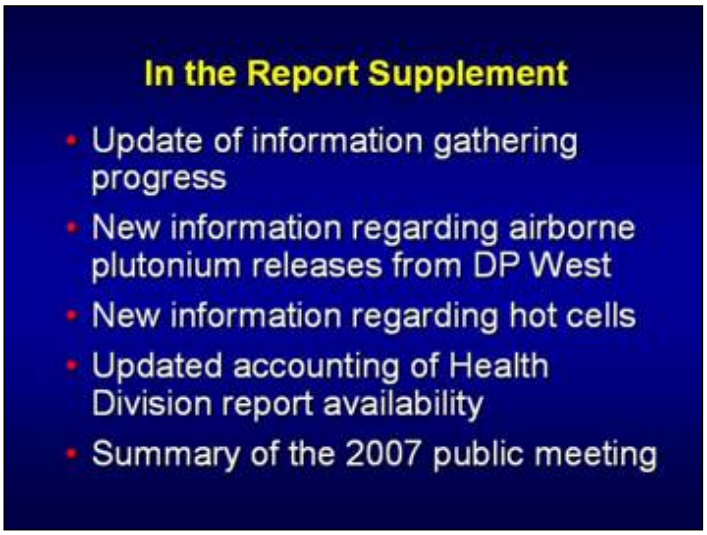
If you find a document that's relevant you can click on download the PDF and the actual image of the document comes up. DocSleuth allows full-text searching of the scanned documents. Charles mentioned that the last full version of the project report was issued in March 2007, and we talked about it last July in our public meeting. We had hoped to release an updated version of it available around now. I talked to the CDC and, because the information gathering has been more involved and time consuming than we had expected and the remaining funds under this contract are quickly running out, perhaps we should put out a supplement this year to preserve resources so we can get some of this targeted documents searching done to address these key data gaps. CDC agreed to that, so we hope to have a supplement available soon. A draft final project report will be issued in 2009 and available for your review and review by a peer review panel.



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That supplement will have an update of information gathering, new information regarding airborne plutonium releases from DP West Site, and new information regarding hot cells. Because of past public interest in hot cells, we are preparing a summary of all the hot cell locations and their activities over time.

We are updating our accountability of Health Division reports. We found early on in the project that the Health Division and the progress reports they produced are among the most valuable documents that we have found in assessing off-site releases and uses of chemicals and radionuclides. We don't have a complete set yet, but over the last year we have found a few more. We have an accounting of those and others find them useful too. We will have a summary of the 2007 public meeting and probably a summary of this meeting in the supplemental report also.

As I have mentioned, the main focus for us has been information gathering. The information gathering at Los Alamos has proven to be, by far, more challenging than at any other site that has been studied in this type of project. What we have been asked to do is to prioritize the releases that we identify. So far, the prioritization methods we have used have been pretty crude. We first started out with a ranking of releases by dilution volume required for each radionuclide or chemical– that is, how much water or air would be required to dilute the annual release to an acceptable concentration at the site boundary. Now we are progressing into screening. The first approach we are taking to that is for early airborne releases of plutonium from DP West Site for 1949.

We are also preparing a screening for beryllium releases. We have learned that a lot of beryllium was used at Los Alamos in the 1940s before anyone fully understood the health hazards of the use of beryllium. It is pretty clear that it was eventually recognized as a worker hazard, but we need to demonstrate whether or not it could have been a public health hazard. As you will see shortly, the people in Los Alamos lived very close to some of the beryllium processing activities.

We are continuing to analyze human tissue sample analysis data. This is a very rarely available dataset we have, in which we have a couple of hundred individuals who we have tissue sample analysis for. We have been able to document through a lot of detective work when they came to the Los Alamos area and where they lived over time. We are trying a number of analyses of the data, looking at levels of plutonium in their body tissues and ratios between the different organs, which can tell you something about when they were exposed. We are trying to get as much as we can out of that type of analysis. One of the things we have learned is that some of these samples are still available, and we are working with the people on the US Trans-Uranium Registry to possibly get some of these samples reanalyzed with modern-day analysis methods, which are much more sensitive than those used in the 1950s and '60s. We hope to learn even more from this rarely available dataset to tell us about plutonium releases.

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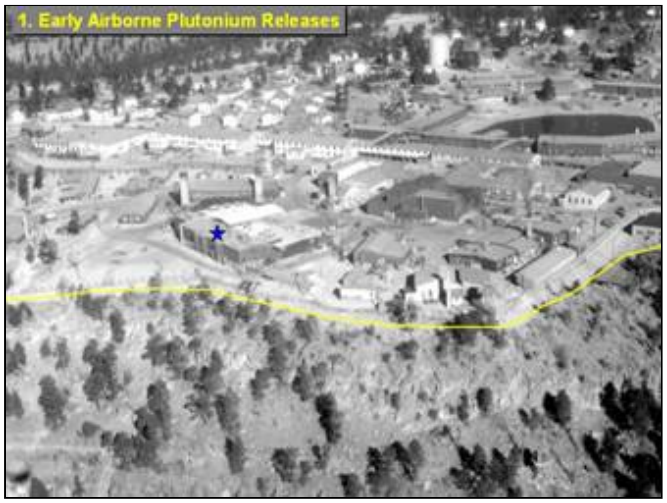
Areas of operations that have particularly caught our attention so far are early airborne plutonium releases, early beryllium releases, exposure from the Trinity test and tritium releases before 1967. I will give you a quick over-view of our understanding of each of these areas and what we might have learned since our last meeting.



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This is the Original Technical Area along the rim of Los Alamos Canyon in 1946. You may know that the Technical Area included D Building, which has the blue star on it in the picture above and was the first building in the world in which plutonium was handled in visible quantities.

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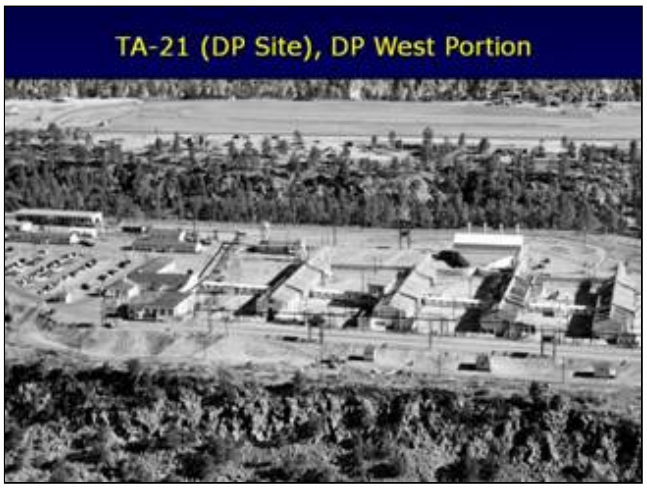
D Building started out as a small frame structure, only intended to be used for a year. It had about 85 roof-top release points, which were unmonitored and almost exclusively unfiltered. During the 1944 and 1945, when D Building was the primary place of processing plutonium, there is a big question mark as to how much plutonium was released.



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In late 1945, the main plutonium production operations moved to a new facility at the east-end of town called the DP site. The western end of DP site (DP West) included these main plutonium production buildings which are, I think, 2,3,4,5 that are parallel. These facilities were where the main plutonium processing for the country was conducted between 1945 and 1949 until the Hanford plutonium finishing plant and than, shortly thereafter, the Rocky Flats plant opened.

Although we have often been told about how Los Alamos was "not a production facility," during the 1940s LASL was the lead production facility for nuclear weapons components in the country.

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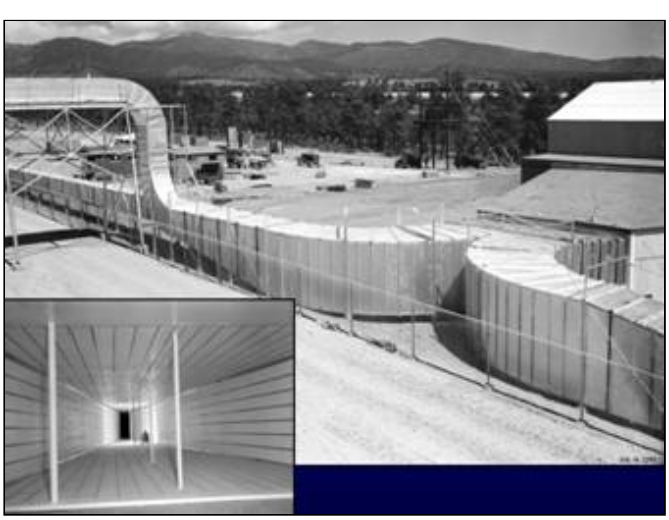
Los Alamos scientists, based on their experience with D Building, were not about to build a new facility without including systems for collecting and treating the contaminated air exhaust. At DP West Site, they designed a "monster" of a system that collected huge volumes of air for treatment before releasing to the environment. Here

you can see each of the main buildings had a large air duct that collected air from the building and conveyed it to a central area.

Here you can see where these air ducts led into a central plenum and into a building that housed filters. For scale, you can see in the inset picture a photographer squatting to take a picture of the air duct. For the first 13 years of operations of these facilities, the process exhaust and the room air ventilation were combined in these air ducts. As a result, the ducts became heavily contaminated and corroded by some of the chemicals in the exhausted air.



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This is DP Site Building 12, which was the filter building. They had electrostatic precipitators and paper filters to treat the air before it was released up these four stacks.

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Here you can see pictures of the electrostatic precipitators, paper filters, and air blowers. There were four of these blowers, and on top of each was one of the stacks that released the air to the environment.

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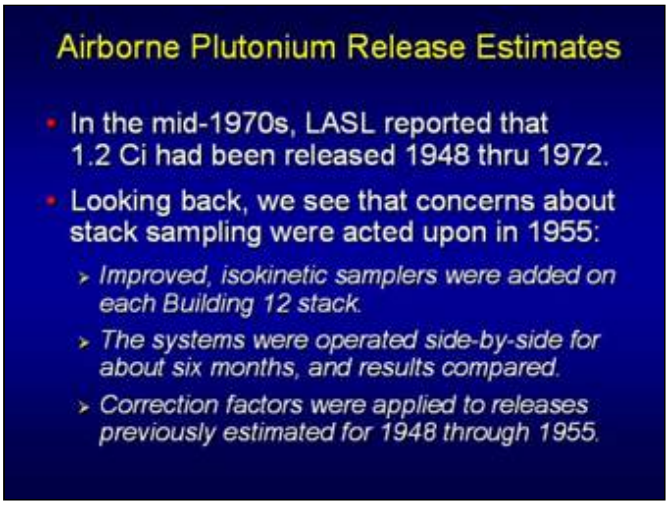
This is a 1947 magazine ad for a Filter Queen vacuum cleaner. This vacuum was used at Los Alamos for sampling air, both in buildings and within the stacks. Here you see a technician sampling air between the last bank of filters in Building 12 and one of the blowers. Unlike D Building, there was stack sampling done at "DP" West. Unfortunately, the sampling in the first years was not complete. Not all four stacks were sampled each month.



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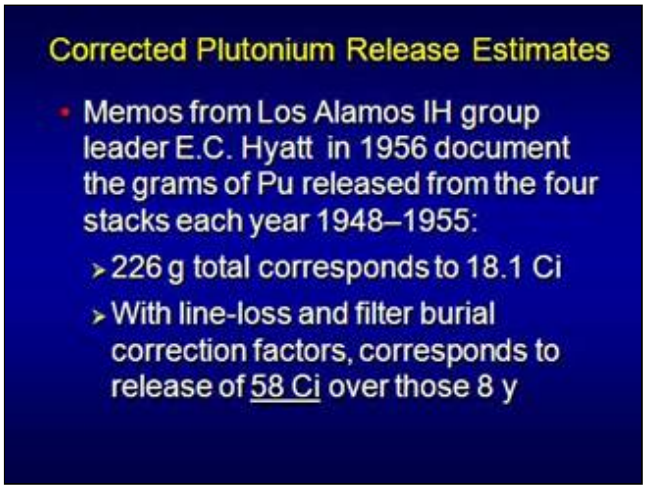
There were concerns about stack sampling methods. In the mid-1970s, the Energy Research and Development Administration, the predecessor to DOE, required that the lab report to them how much radioactivity was released into the environment from the beginning of plant operations. They came up with the total of 1.2 Ci from 1948 to 1972.

Looking at documents, we find that there were concerns raised around 1955 for the quality of the stack sampling upon what these estimations were based. Based on that, improved air samplers were placed in each of the Building 12 stacks. Isokinetic refers to sampling done such that the flow rate of the sample matches the flow rate in the stack, so that you accurately sample the particles that in the air. The old and new sampling systems were operated side-by-side for six months, and the results were compared. They found that the old stack sampling system had

significantly under estimated what was being released. Correction factors based on that that study were retrospectively applied to release estimates from 1948 through 1955, and the improved sustem was used from that point forward.



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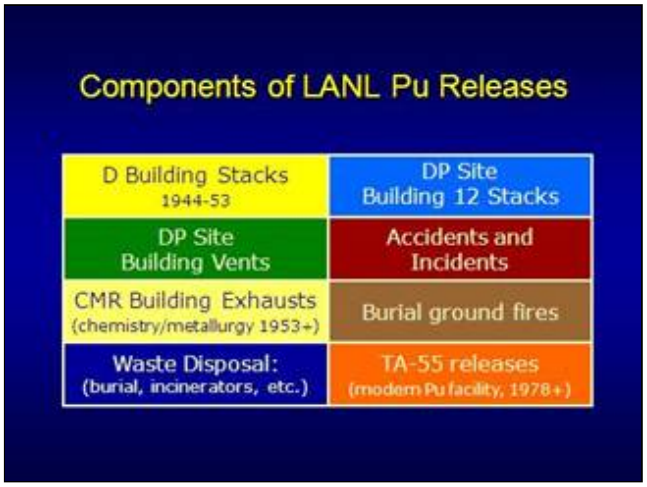
We found memos from a LASL industrial hygienist, Edwin Hyatt. He documented the grams of plutonium released 1948-1955. The total comes to 226 g, which corresponds to 18.1 Ci. If you put in the line loss and filter burial correction factors, which are widely recognized as necessary for modern stack sampling, this amounts to releases of about 58 Ci over eight years. Keep in mind that this only corresponds to releases from Building 12 stacks at DP West, one part of the site total release from Los Alamos.



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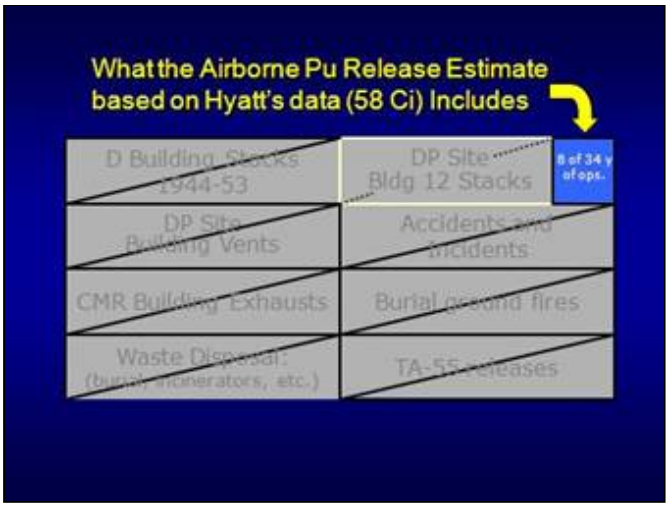
If you want to look at the total release from Los Alamos, these are the main components we see that should be included: The 85 unmonitored rooftop vents on D Building, DP West Site's Building 12 stacks, other releases from DP West buildings, accidents and incidents, exhausts from the Chemistry and Metallurgical Research Building (which started up around 1953), fires that occurred in radioactive waste burial grounds (including one near DP West in 1946), and waste disposal operations

Much learned in D Building and DP West went into design and operation of facilities such as TA-55, so we don't expect TA-55 releases to be anywhere near the early-day releases of D building and DP West.



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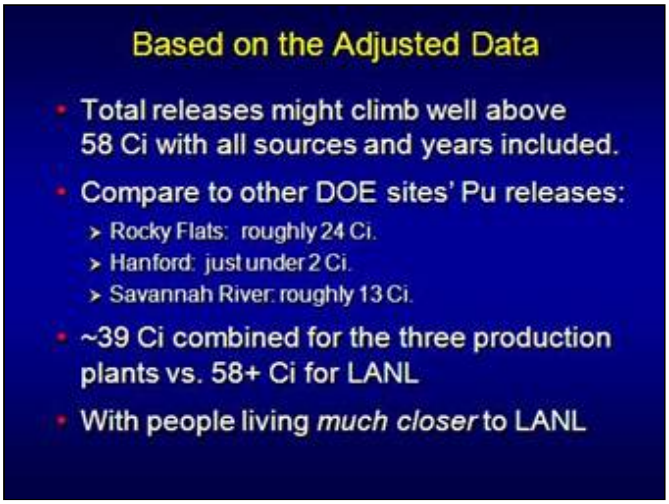
If you look at the 58 Ci release and which of these sources were reflected in this release, you will see that only one of them is, the Building 12 stacks. And even for that source, only for 8 of its 34 years of operation. If all sources are considered, the site total plutonium releases could go well above the 58 Ci value.



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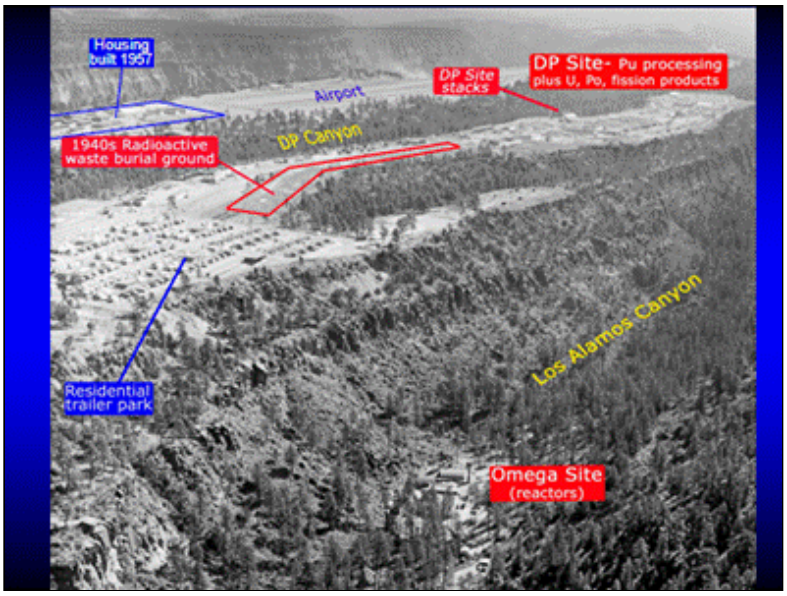
If you compare that to the main DOE sites that produced or processed plutonium, you can see that together they released 39 Ci based on independent dose reconstruction projects that have been completed, compared to over 58 Ci from Los Alamos.

The reason that this attracts our attention is that people lived closer to operations at Los Alamos than in any other DOE site we've seen.



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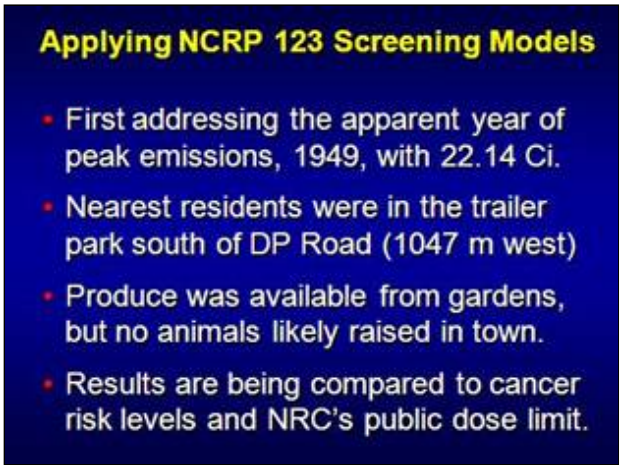
This photo shows a trailer park that operated south of DP Road. You can see that, and housing by the airport, in close proximity to DP Site stacks. This is one example of where the residents were so close to operational areas. Some of the most desirable housing was right across the street from the original technical area– as little as 100 m from where beryllium and plutonium were being processed.



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To help us put airborne releases of plutonium in perspective, we have begun to apply the NCRP 123 screening mythology. We have addressed releases in 1949, which appears to be the peak year; 22 Ci of plutonium were released. Nearest residents at the time were in the trailer park 1,000 m to the west of DP Site. Even though the town was still a closed town in 1949, residents could grow gardens after the war. At the same time, we see no evidence of animals being raised in town for local consumption.

We have gone through the NCRP 123 screening methodology as a first step to help us prioritize releases. There are three levels of screening: you start at with crude, conservative assumptions, and then move up to more refined screening. At each level of screening, the results indicate that plutonium releases warrant investigation at a level more advanced than the current level of preliminary screening. The results are under review right now, so I can't tell you the actual values, but they are in each case well above the cancer risk guidelines or regulatory limits that are normally applied.

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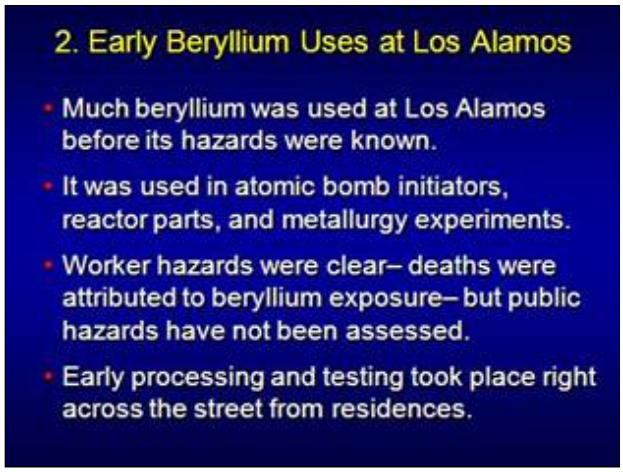
This is a modern-day Google Earth image of DP West Site, and I have superimposed an old drawing of the former trailer park. From the centroid of the four stacks to the nearest trailer would have been just over 1,000 meters. This housing by the airport was part of Group 18 housing that was not added until 1957.



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The second area that has attracted our attention deals with beryllium. Beryllium was used at LASL before much was known about its hazards. People can be sensitized to beryllium after exposure to very small quantities. Beryllium was used in atomic bomb initiators and reactor parts. We have seen documents of a 6,000 lb order of beryllium being placed by LASL around 1945. We have seen evidence that 110 ft of beryllium rod were machined in the original technical area for use in initiator production. It is clear that beryllium processing was, after several years of use passed, recognized as a worker hazard but to our knowledge has not been addressed as a potential public health hazard.

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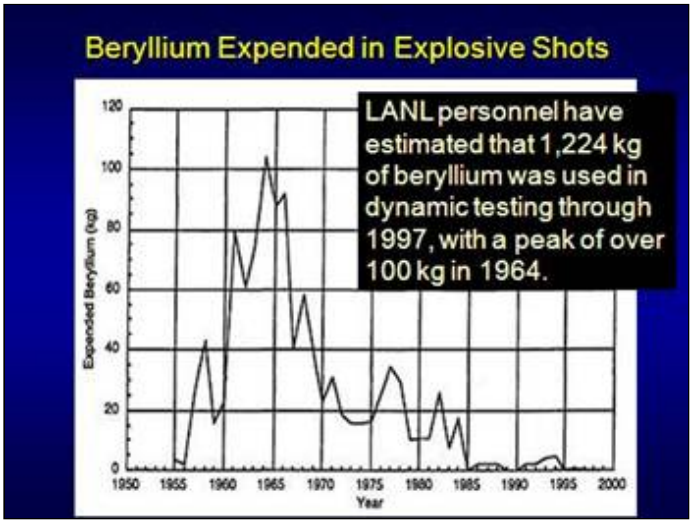
Early beryllium processing occurred across the street from residential areas. Here you can see Gamma, V, B, Sigma, and Delta Buildings, in which beryllium was used. Most of the machining was done in the V shops. In an annex placed in the back of B Building, a 20-mm cannon was used to fire replicas of weapon components against a target to test them. By the end of September 1944, about a test a day was being performed. This was an unmonitored release point of beryllium and polonium.



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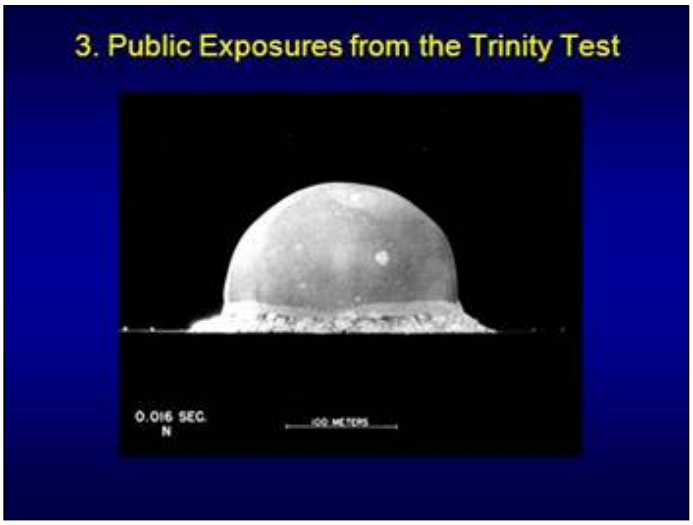
Another source of beryllium release was its use in dynamic testing, also known as explosive testing. These are estimates produced by the lab; we have not yet independently verified them. As you can see, the peak was in 1964, with over 100 kg of beryllium expended. We are now doing a screening assessment of how much of the beryllium that was expended could have traveled to public areas, and how that compares with releases from the machining that was performed in the technical area.



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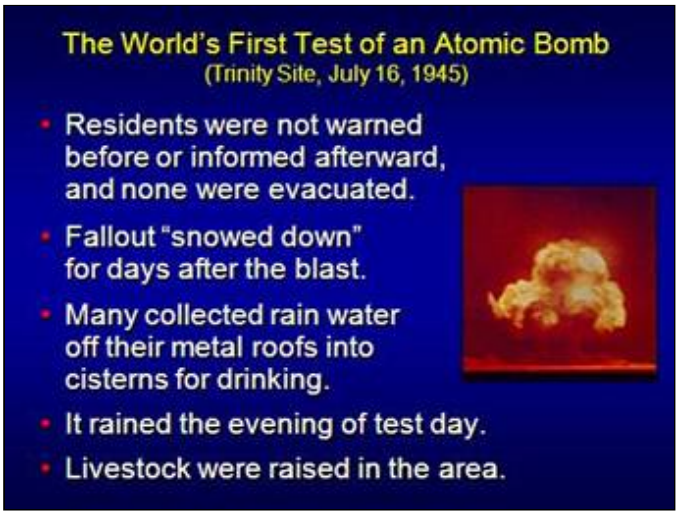
The third area that has attracted our attention involves potential public exposures to radioactivity from the Trinity test, the world's first nuclear explosion.



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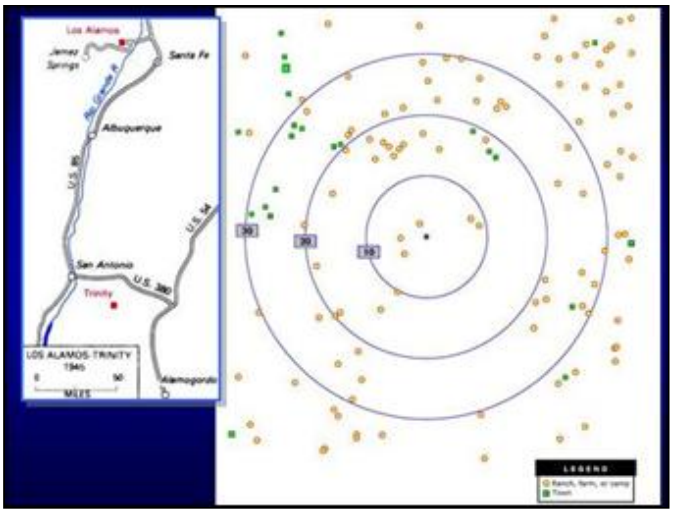
Residents near the Trinity test site were not warned before the test or informed about potential exposures afterwards. Fallout was said to have snowed down for days after the blast. Many of the residents collected rainwater off their metal roofs into cisterns for use as drinking water. It rained the evening of the day of the test, so fresh fission products were likely consumed in the days after the blast. Livestock was raised in the area. One ranch had as many as 200 goats.



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Some people think that the area around the Trinity test site is a desolate area. But, as this map depicting locations of ranches, towns, and camps in the area shows, the area was far from uninhabited.

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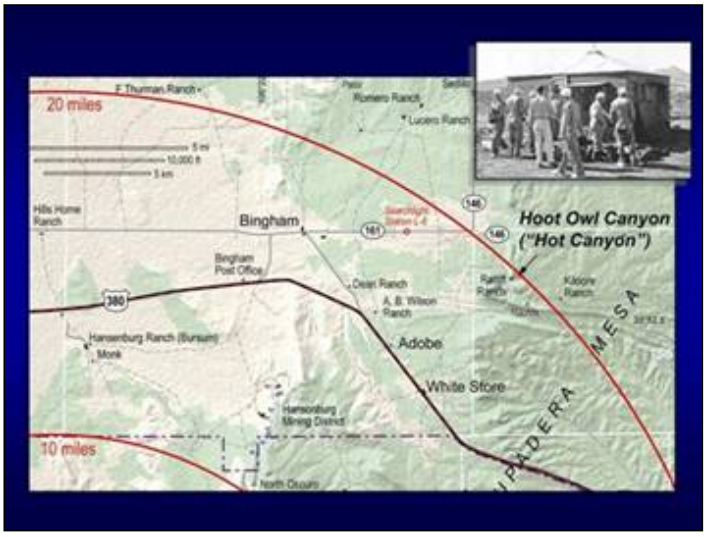
Most of the releases from the blast went towards the northeast, and the highest exposures occurred around the town of Bingham and in the area of Hoot Owl Canyon, which became known as “Hot Canyon.”



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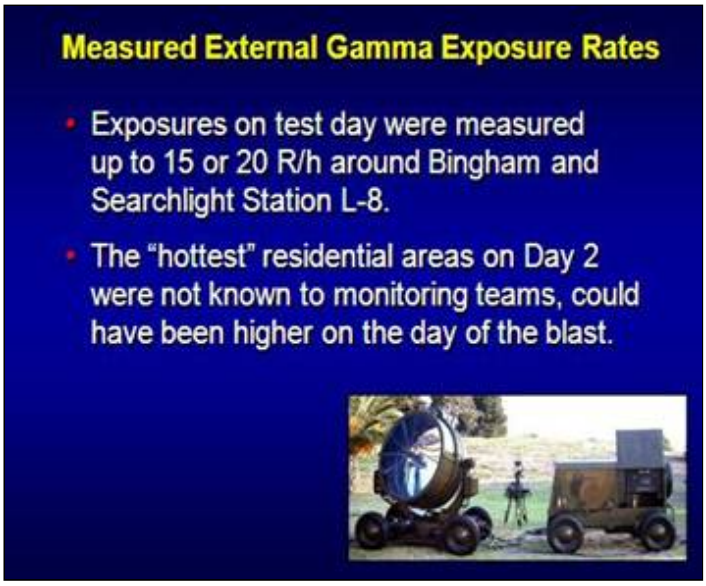
After the Trinity blast, measurements were taken by field monitoring teams like the one shown here.



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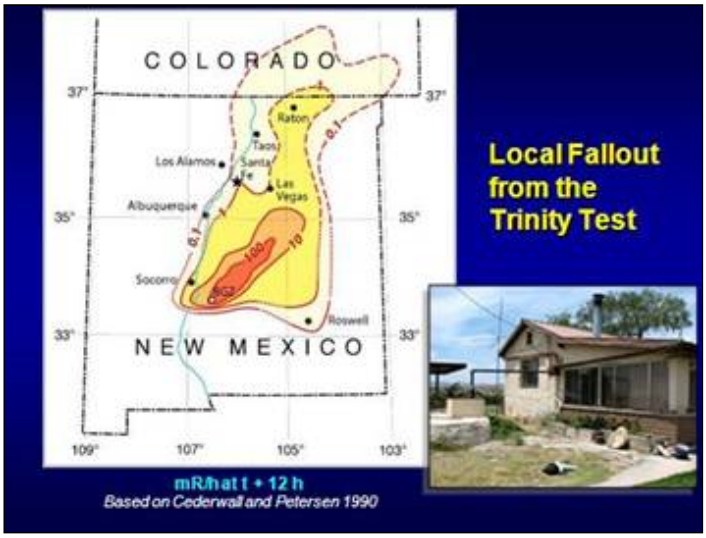
Exposures on test day were measured up to 15 or 20 Roentgens per hour around Bingham and Searchlight Station L-8. Searchlight stations were locations where searchlights like this one were set up to illuminate and track the cloud from the blast. They were thinking that the blast would occur during the darkness, but because it was delayed, the searchlights were not as necessary.



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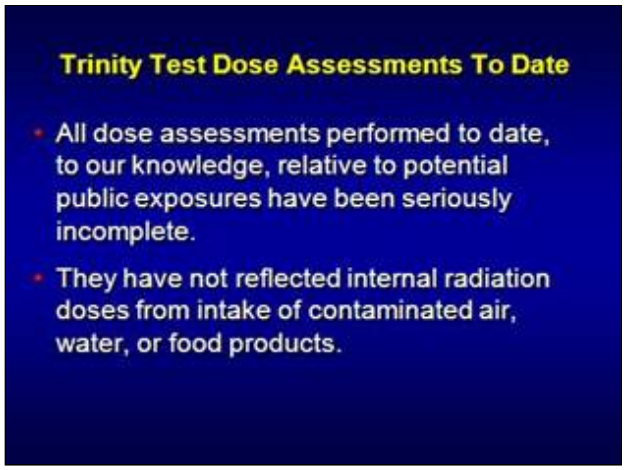
Some modeling of fallout patterns from the Trinity test has been performed by government agencies, but not nearly to the extent as has been done for tests done at the Nevada Test Site.



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As I mentioned at out meeting last year, so far all of the assessments that have been done for Trinity releases have only looked at the external radiation pathways. They have not taken into account exposure to the people who breathed the contaminated air, drank the contaminated water, and consumed the contaminated milk and other food products.

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To fully appreciate the releases from the Trinity test, the unfissioned plutonium that was dispersed across the countryside should be addressed. The instruments at the time were not capable of measuring that plutonium, and there was no effort made at the time or since to estimate internal doses to those people who could have breathed in or consumed that contamination.

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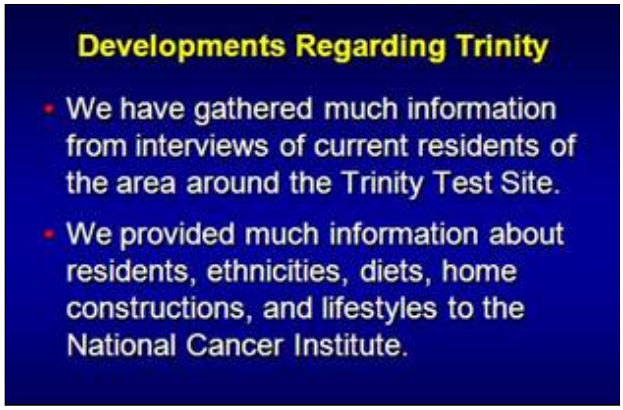
This slide identifies some of the exposure pathways that have not been addressed to date for Trinity fallout.



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Since our last meeting, we gathered a lot of information about the people who lived around the Trinity site. We have learned a lot about the types of buildings they lived in and their lifestyles. We have shared that with the people at the National Cancer Institute. I believe Senator Bingaman asked the NCI to do an assessment of potential doses from the Trinity test. We supplied a lot of information to them and believe that an assessment was done but has not been publically released. We are hoping that sometime in the near future, the NCI assessment will be released.

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This is some of the information we gave to the NCI. We gave the name of each ranch along with coordinates so they could use that in their assessment.

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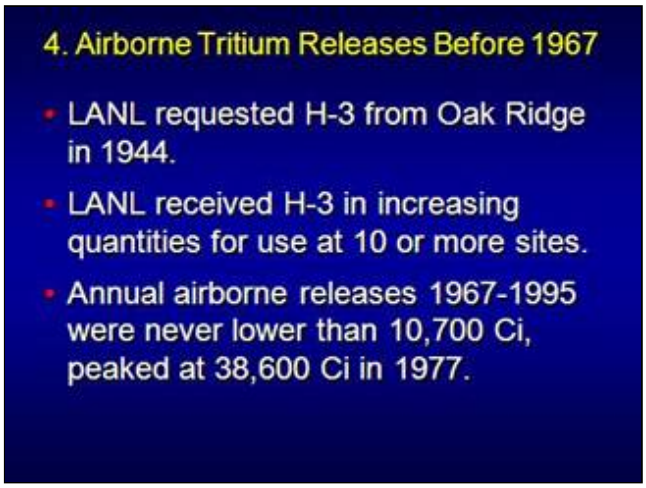
We also investigated the types of housing, largely adobe; some wood some stone, not many brick. They basically used the materials that were readily available. This is part of the information that the National Cancer Institute requested.



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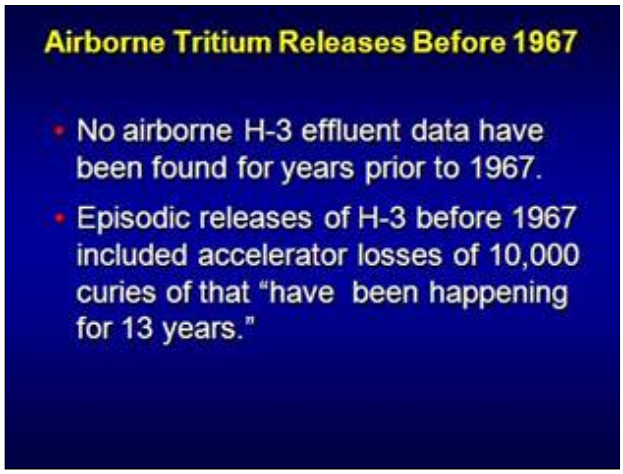
The fourth area that has attracted out attention concerns airborne tritium releases before 1967.

We know that the Los Alamos National Laboratory first requested tritium from Oak Ridge in 1944 and they received it shortly thereafter. Over the years that followed, they received it in increasing quantities for use at 10 or more Technical Areas.



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We have found no tritium effluent data before 1967. Reported releases after 1967 were never lower than 10,700 Ci, and peaked at 38,600 Ci in 1977. We have found documentation of many episodic releases, including documents that refer to releases from an accelerator facility that experienced releases of about 10,000 Ci routinely over a 13-year period.

We assembled anecdotal reports of tritium before 1967. In one year they total to about 65,000 Ci and in another year about 38,000 Ci, each within a 22-y period for which the official release estimates did not include any data on tritium. We acknowledge that it takes a lot of tritium to pose an off-site health hazard compared to plutonium, but we feel that tritium releases before 1967 represent a significant data gap that should be better addressed.

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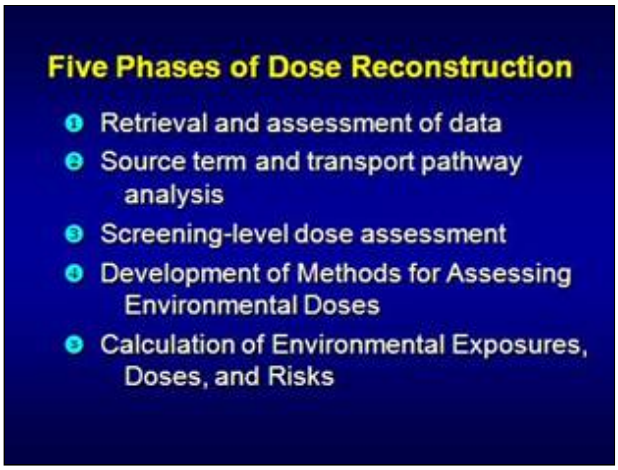
These are the four areas that have attracted out attention thus far. There are more areas over the next eight months. Some of these may go away if we receive the information to address these questions. Time will tell over the next eight months.



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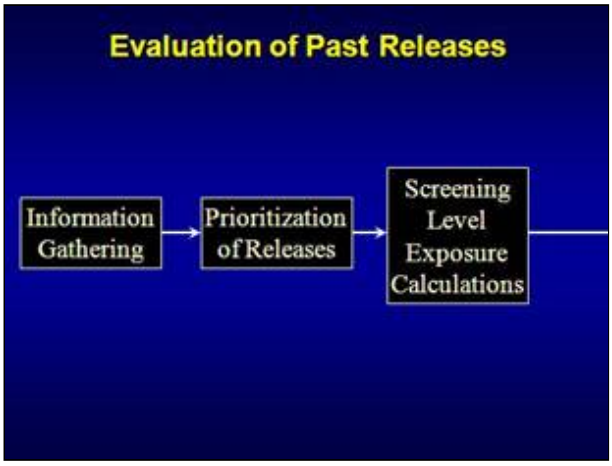
I wanted to point out that again, the phase we are involved with now is the retrieval and assessment of data. The process that CDC usually uses becomes increasingly more rigorous in addressing what the potential exposures could have been.

While are in the information gathering stage, we have started some screening level assessment of key releases. Any of the assessments we have now are very crude and again, focus has been on gathering information and making screening level decisions that will help determine which are important and which are not important.

Information gathering can lead to the prioritization of releases and then to screening level exposure calculations.



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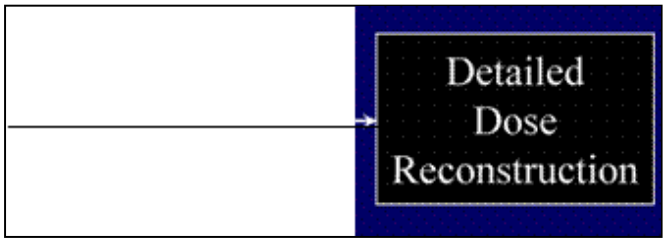

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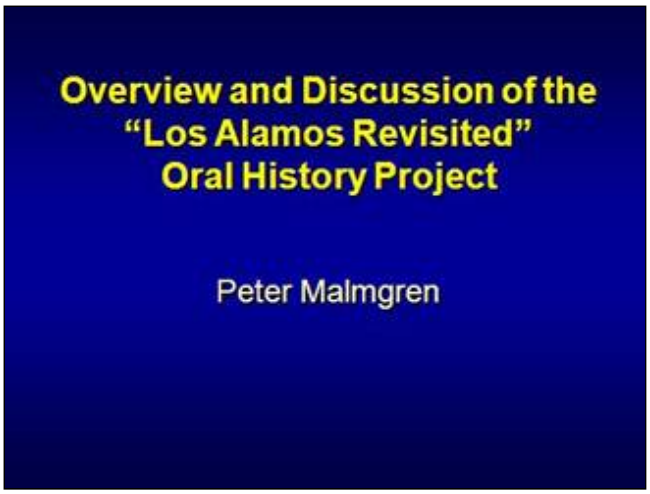
A detailed dose reconstruction is a long way separated from what we have done so far. When we get to the point of the peer review of our draft final report, there will be a good number of questions that have not been addressed. What we are trying to do now is gather the information we need to focus on historical operations and releases that

could have been important in terms of off-site health effects.



Slide 50 of 53 and Photo of Peter Malmgren

Peter Malmgren presented an overview of the "Los Alamos Revisited" oral history project. The purpose of the project was to tell the story of the creation of the Los Alamos National Laboratory from the vantage point of the people who built it and worked in or near Los Alamos. The project was supported by the University of New Mexico and later by the Centers for Disease Control and Prevention (CDC). Each of the retired laboratory workers interviewed was sought out one by one in their towns and communities across the state. The histories include testimony of janitors, machine workers, radiation technicians, engineers, heavy equipment workers, and senior weapons specialists to name a few.

As of this presentation, 145 interviews have been collected, transcribed, and placed in the state archives.

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The photo exhibit "Los Alamos Revisited," which includes an archive of images of Los Alamos from the formidable years, has traveled to a variety of communities across the state.

The project functions as a learning tool to heighten public awareness for the up-till-now silent workers of the Los Alamos Laboratory.

Slide 52 of 53 and Photo of Elizabeth Kocher

Elizabeth Kocher presented an overview the Radiation Exposure Screening and Education Program (RESEP). The program was designed to perform medical screening for miners, millers, on-site participants, and down-winders that were exposed to radiation in anticipation for possible compensation due to any occupational injuries.

Thorough occupational and medical histories are performed for each participant. Participants in the program must have worked in the mining industry between 1942 and 1971 for at least one year. The medical screening looks for pulmonary disease, pulmonary cancer, renal cancer, and renal disease.

Clinics are available at University of New Mexico-EOHS and at the ACL Hospital in San Fidel, New Mexico. Currently, one clinic is held per month.

Information on compensation through RECA can be found at https://www.justice.gov/civil/common/reca (https://web.archive.org/web/20230207111106/https://www.justice.gov/civil/common/reca) or by calling 1-800-729-7327 or by e-mailing civil.reca@usdoj.gov (https://web.archive.org/web/20230207111106/mailto:civil.reca@usdoj.gov)

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Questions and Comments

Public: I was curious if there was some kind of estimate for the fallout from some of these emissions further down the valley to the pueblos or even as far as Española north from Los Alamos?

Tom Widner: That would be the type of thing that would be done under a more detailed dose reconstruction, if that were to be performed. In the screening steps and prioritization that we are doing now, usually we are concerned with worst-case or maximally exposed individuals. If the steps were taken to study any contamination in detail, a study would more widely cover areas that would be expected to have been affected.

Public: With regard to the information about the 58 curies and the investigation for the cancer risk and the NRC public dose limit. Who is performing the review right now?

Tom Widner: Charles Miller and CDC's Radiation Studies Branch; this is the first step. The peer review panel that CDC plans to assemble will also review the prioritization and screening assessments. Charles was part of the committee that put that NCRP 123 methodology together.

Public: Do you know who your peer reviewers are going to be?

Charles Miller: The easy answer to that is no. If you have any ideas of people who you think would be good, we would be interested. When the report comes out, if you have contact information for people that were not chosen, please send them to us. This is will be an open, public process.

Public: I am going to the plutonium in the soil. Are you anticipating that kind of reaction from LANL? I don't see anyone from LANL here or from DOE, do you?

Tom Wider: I see about ten folks from the Lab and DOE/NNSA here tonight.

Public: Are you anticipating the same kind of resistance on any numbers you put forward in regards to the cancer risk and the NRC numbers?

Charles Miller: What we are doing– what Tom and his team are doing– is generating screening values. What you do there is you do a calculation of a number and compare it to a standard. Tom's process is looking at a variety of standards. One of things we are looking at is whether we chose the right types of standards. What the screening does is strictly prioritization. The number you come out with during the screening process as far as risk or dose is practically meaningless. It is a meaningless number other than it tells you, when the number is very high, that you need to look at the releases in more detail.

The process makes some, what I call, conservative consumptions. It makes maximizing assumptions. For example, at the first level, it assumes that the wind blew all the time directly at the trailer courts. It also assumes that the person who lived there got most of his or her food out of a garden. I don't think either of those things happened. But it gives us an idea that, if the number is very high, that maybe we should look at how much did the wind blow that direction and how many carrots and tomatoes people really did eat.

If those estimates are, in fact, correct. And as Tom explained, we are trying to find out if they are correct. We have documents pieces of information; there are a lot of holes in that information. If anyone can show us that there are any other documents, we are looking for that. The numbers that Tom gave you are the best numbers we have today.

Public: At the beginning of your talk, you mentioned some difficulty of getting documents out of the lab. Could you elaborate on that? Were these different kinds of documents that you had not asked for previously?

Tom Wider: There is a pretty involved process for obtaining documents. There has been some turnaround in project staff; that may have been part of the delay. It is just that we are coming to the home stretch here where we cannot accommodate significant delays. If it takes six months from when we request a document to when we get it, it is going to come too late to affect out decisions. There aren't particularly problematic documents; it is just that the machinery for getting out documents is not working very well lately, for a number of reasons. We gave our assurance to that we are willing to do whatever it takes for it to work again. It just right now it is just working too slowly for us to finish this is this calendar year, let alone this fiscal year.

Again, we trying to bring attention that this is going too slowly. We can go back and draft our final report now, but there are some key questions that you heard here today, so that if we can get some targeted searches to get a couple more pieces of info, it can greatly increase the quality of our work product.

Public: The overall continuing story was how many curies of plutonium more than were estimated were found. Can you summarize the steps along that way? First, you said as much as a 100 times more but now these numbers suggest 25 or 30 times, minimum; but we know that there is a lot more? I don't understand the ratio of tritium is,

those curies are, to the plutonium curies. Can you summarize this story?

Tom Widner: About three or four years ago, we started looking at soil samples as an environmental record of what was released and performed a back calculation of what would have been released to match what we are finding in the soil samples. What that indicated to us was that there were a lot of uncertainties, but it indicated that releases from D Building and DP West could have been a lot higher than what the Lab reported, I believe we may have said up to about 100 times higher.

Again, some people looked at that and agreed that there were huge uncertainties. When we found the 1955 and 1956 stack sampling study documents by Edwin Hyatt, however, it put our assessment in a new realm, in that we had some of the Lab's own documents that indicated that airborne plutonium releases were significantly higher than reported. And that was from consideration of only releases from DP West Building 12 stacks. We think, in order to look at the total impact of the site, you also need to incorporate the other sources, including accidents and unmonitored early releases from D Building.

Our fist estimate based on soil samples was made with some assumptions; it could go up or down, but now, since we have the results of the special 1955 monitoring study, the soil back calculation became less important.

Public: The relationship of the tritium with plutonium?

Tom Widner: Unlike plutonium, it takes thousands of curies of tritium to be an off-site health hazard. It isn't as radiotoxic to the body, and it goes into equilibrium with the hydrogen and water in the air and in the environment. Again, it is not as much of a serious release as plutonium, but we think the 22-year period for which releases were not reported is an important data gap that should be studied closer. We doubt that tritium will be as important as plutonium releases, but with additional effort, the release history can be completed such that historical releases can defensibly be put into perspective.

Public: In the last meeting, you brought forth the Trinity experiment and test site. This time you have included the photo exhibit and talked about the oral history. What is you intention in adding these elements to the project?

Charles Miller: Most of the information that ChemRisk has gathered was turned over to the National Cancer Institute. They have prepared a dose assessment report. That report was presented to Congress. It is my understanding that they have not been able to get the report finalized. I am going to write a note to the National Cancer Institute to ask them about that report. I have not seen the report to Congress.

Tom Wider: The information that Peter Malmgren has put together has been helpful to us. The oral histories help us fill in gaps in our knowledge and put into perspective a lot of what we are reading in historical documents and put a human face on parts of Los Alamos's history.

One thing I wanted to point out regarding the Trinity information– we have seen a number of reports that the Ratliff ranch had a herd of 200 goats. Those of us who have studied radioactive releases know that goat's milk is particularly effective in concentrating radioactive iodide in a way that can result in human exposure. What we have learned since last year is that the goats were likely raised for their wool or fleece. Mr. Ratliff would take the wool down to the post office at Dean's Store in Bingham and send it to his buyers.

Public: Has any assessment been done on the migrating animals? As we know, the animals eat the grass and eat the shrubs. Has any of this been done, especially in regards to the elk and deer? If not, why not?

Tom Widner: We have collected a lot of environmental reports that touch in part on those issues. It is well beyond the level of assessment that we have been able to do so far, but these issues would be considered in dose reconstruction. They have not been incorporated in our assessment yet.

Public: I like to direct this question to Peter and Elizabeth. When you interviewed the people who had this exposure, how are you dealing with the family members who would have had second-hand exposures? I know with uranium miners in particular, they bring home their clothes containing the contamination. How is this addressed in the program and, Peter, have you done any documentation of these second-hand exposures?

Peter Malmgren: I don't think so. I think there were some concerns. This woman, Darlene, explained to me that her father was a laborer and was very affectionate. He didn't change clothes at work, and when he came home, the kids jumped all over him at the end of the day. There was a sense of anxiety about it, but it was never taken beyond that to where there may have been that connection.

Elizabeth Kocher: Unfortunately, the RECA Act does not cover individual's families as far as the women and children. It is unfortunate. Something I did not mention earlier, is that there is a tremendous archive of chest x-rays and medical records that date back to the 1940's. The RECA Act does cover deceased miners, so if there are spouses who are still living or children who are still living, they can still file a claim.

Public: I was hoping that Andrew would be able to talk about the SEC petition.

Andrew Evaskovich: I filed a special exposure cohort petition under RESEP for 1976 to 2005. Under the Act, which was explained earlier, the petition has been approved for evaluation on May 29th, and is in the evaluation process. Mark Lewis from ATL is here to help set up a worker outreach meeting with NIOSH n order to discuss this petition.

Public: What kinds of hoops does one have to jump through to qualify or what other hurdles do they have to go through in order to receive their compensation?

Andrew Evaskovich: They have to go through the application process. Employee history is determined and the type of cancer is determined. It has to be one of the 22 listed cancers that are covered. Basically, the special exposure cohort, if approved, would eliminate the need for dose reconstruction, so it would make it easier for people to get the compensation. Initially, that portion of the Act was inserted because the gaseous diffusion plant records were not sufficient to support dose assessment. The argument of that petition is that the records are not accurate enough to do a dose reconstruction on the specified group of employees. To be in the group, persons have at have had at least 250 aggregate days of employment with the site.

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