



June 23, 2005 Public Meeting Summary with Public Comments / Questions & Answers

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(Slides are reproduced from presentation; speaker comments follow.)

(Statements are not direct quotes, they are paraphrased.)

(Public comments and questions made during the meeting are preceded by the word "Public." Response to the questions/comments are preceded by the responder's name when available.)

Project Update, Discuss New Contract

Time 5:00-7:00 p.m.

Location **Cities of Gold Hotel**
Pojoaque, New Mexico

Speakers Phil Green, CDC Project Officer ([Introduction](#))
Tom Widner, Project Director ([Project Summary](#))

Summary Tom Widner summarized project goals and status, discussed the new contract, outlined progress with document reviews including presenting plans and procedures for reviewing documents contained in the Litigation Support Database and the Archives, and presented goals and findings of preliminary prioritization of releases.

The meeting concluded with [public comments and questions](#).

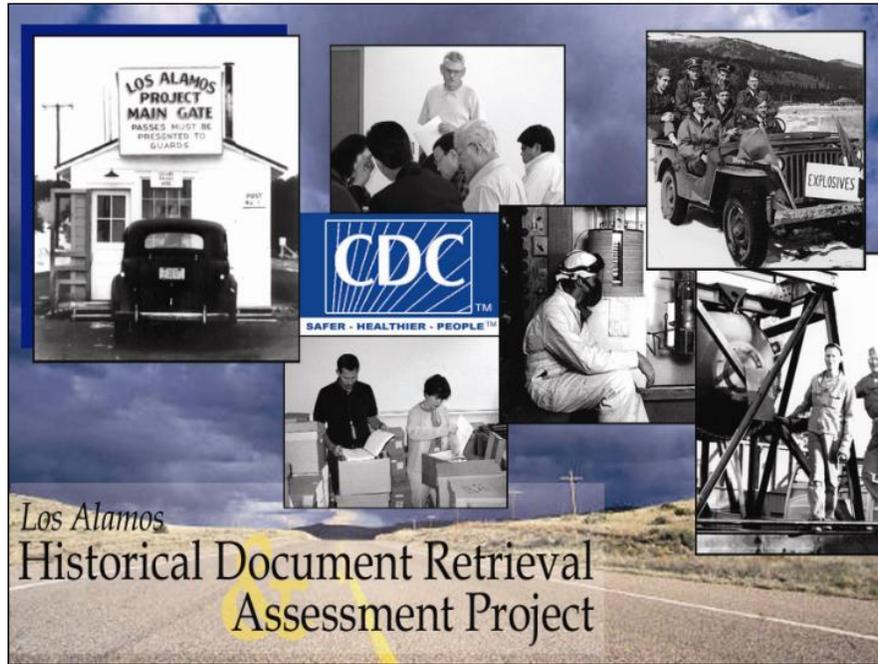
Note: To review background information on the project, please see the [February 23, 1999](#) meeting summary and slides.

Slides & Notes [Tom Widner \(Project Summary\)](#)
[Public Comments / Questions and Answers](#)

Introduction

Phil Green of the Centers for Disease Control and Prevention (CDC) welcomed meeting attendees and summarized the meeting agenda:

We have not been back since the July 2004 meeting because the contract had to be competitively bid. A new contract was awarded in September 2004, but no one had access to the Los Alamos National Laboratory (LANL) site until February 2005. We have now been allowed back into the site, so we are here to tell you what our progress has been since February.



Los Alamos Historical Document Retrieval and Assessment Project	
 CENTERS FOR DISEASE CONTROL AND PREVENTION	Phil Green C. M. Wood Judy James <i>In attendance today...</i>
	Tom Widner Susan Flack Cheryl Allen Kurt Fehling
 Shonka Research Associates, Inc.	Bob Burns Jim O'Brien

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I will give a quick overview of our goals and what we anticipate for the future as we move toward the completion of the project. Tom Widner introduced project participants attending the meeting.

Goals of the LAHDRA Project

- Retrieve historical documents and evaluate their usefulness for off-site dose assessment
- Declassify (if necessary) relevant documents and release them to the public
- Enter relevant documents into a database
- Develop a prioritized list of contaminant releases from the LANL site

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In case we have new folks here tonight, I will briefly summarize the project goals. We are here to retrieve and evaluate documents relevant to off-site releases or health effects, bring about declassification of these documents as necessary for public release, enter the documents into a database, and take the first steps toward prioritization of releases.

Five Phases of Dose Reconstruction

- ① Retrieval and assessment of data
- ② Source term and transport pathway analysis
- ③ Screening-level dose assessment
- ④ Development of Methods for Assessing Environmental Doses
- ⑤ Calculation of Environmental Exposures, Doses, and Risks

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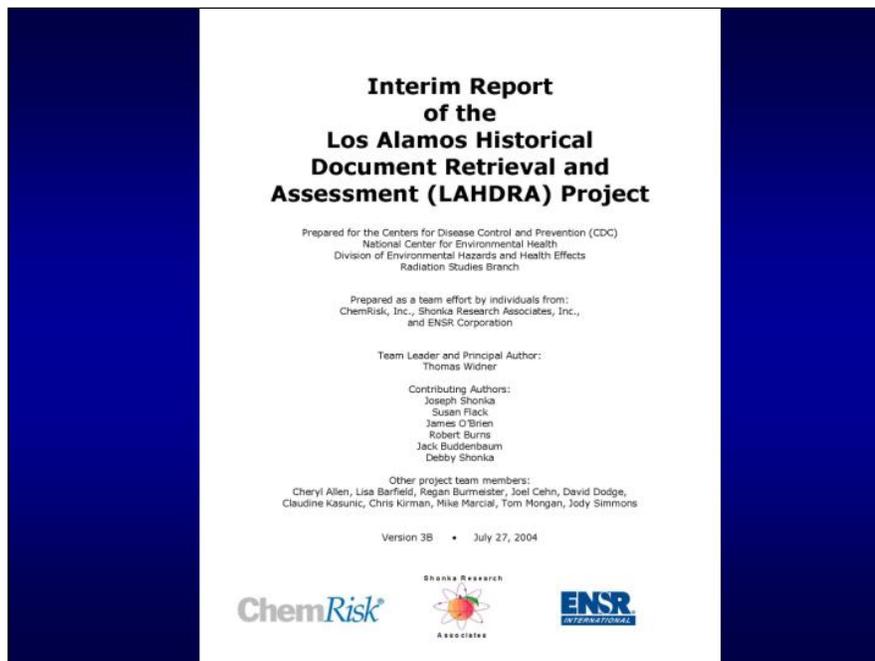
We are in the retrieval and assessment phase of the CDC dose reconstruction process. Beyond that, we are performing preliminary stages of prioritization of identified releases. It is not guaranteed that any stage beyond information gathering will be conducted. If significant risks are identified, however, CDC could go through the entire process.

Products of the LAHDRA Project

- Database of relevant information
- A collection of relevant documents
- Report with a summary of historical operations, identification of releases, and prioritization of releases
- A chronology of incidents and off-normal events

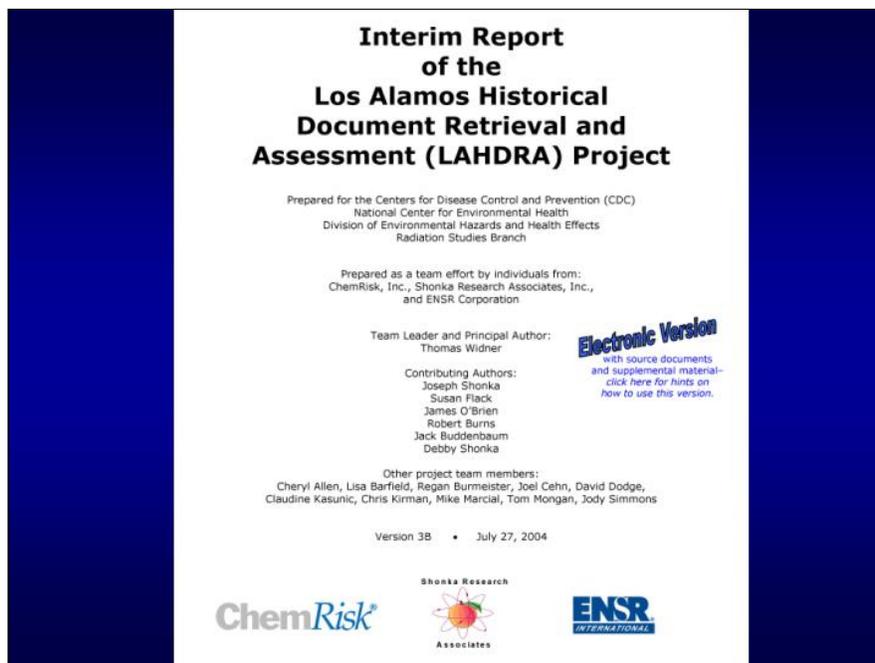
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One of the most important products of the project is the database containing relevant information. The database and collection of document images is now available in three libraries.



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Some of you may already have a copy of the Interim Report , which we put out last July. The report identifies what we have completed and what is left to be done.



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An electronic version of the Interim Report is available on CD in Adobe Acrobat (PDF) format.



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It includes links to cited documents, which are also contained on the CD.

The LAHDRA Document Summary Form

Document Abstract: Original <input type="checkbox"/>		
<i>Provides summaries of research and development programs at LASL, including weapons development and testing, Rover, plasma thermocouple, Project Sherwood, reactors, critical assemblies, theoretical physics and mathematics, Vela Program, accelerators, explosives research, health research, chemistry & metallurgy research, and cryogenics. Includes a chronology of LASL "firsts" from 1943 to 1964. Includes some historical facts about LASL and The Los Alamos community.</i>		
ANALYST'S COMMENTS ON DOCUMENT'S RELEVANCE TO DOSE RECONSTRUCTION. <i>Useful historical background, employment levels, housing details.</i>		
ANALYST: <i>T-E. Wilson</i>	DATE REVIEWED: <i>12/3/2003</i>	
S7 Reviewer Initials:	S7 Review Date:	Page Count:
<small>Internal Use Only</small>		
Repository#: <i>4048</i>	Date Entered into Database: <i>12/4/03</i>	Signature: <i>[Signature]</i>

REV 5: 2/7/03 Los Alamos Historical Documents Retrieval and Assessment Project

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We are looking for documents relevant to off-site releases. When we find a relevant document, we fill out a Document Summary Form (DSF) by hand. The information from these document summaries is added to the Access database.

The Project Information Database

- A Microsoft Access® database holds the information from DSFs
- Each document or group of documents is assigned a repository number
- Now contains ~4,400 bibliographic records
- Close to 60% of these are linked to image files for the actual document.

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Many of the document summaries in the database are linked to images of the actual documents. Some documents or document collections are not included in the document collection because we elect to document the existence of the information that they contain but not ask for copies.

The LAHDRA Document Collection



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We have about a dozen file cabinets filled with paper documents located at Atlanta and the Zimmerman Library on the campus of the University of New Mexico in Albuquerque. The scanned images of the documents are easier to work with, and they fit on two DVDs or about ten CDs.

Document Imaging

- Scanning was initiated for preservation and presentation of documents.
- ~3,000 image files are available as PDFs.
- Each contains from 1 to over 2000 pages.
- Database records are linked to the associated image files.
- Searches can be performed on the database fields or the full text of the scanned documents.

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The full text of the scanned document collection is searchable. Or you can search just the bibliographic data from the document summaries.

Document Review Was Completed at Some LANL Locations

- ES&H Records Center
- Weapons Engineering and Manufacturing and Weapons Physics Division records in VTR and safes
- LANSCE records

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Before the first contract ended, we completed review of the documents housed in several facilities.

Document Review at the LANL Central Records Center

- The Records Center was the first repository targeted for review.
- The Center fills a 15,000 sq ft building.
- The Center has provided retrievable storage for records from LANL groups and divisions.
- The Center holds boxes of records, plus microform and notebooks.
- About 200 boxes of documents and 2,000 rolls of microfilm remained to be reviewed.

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The Records Center is a key facility. When the contract closed, we had reviewed most of the records located there except for about 200 boxes of documents and 2,000 rolls of microfilm.

Document Review at the LANL Reports Collection

- Classified and unclassified technical reports on paper and microfiche.
- Classified "LA" and LA-MS" reports issued before 1963 were 100% reviewed.
- Classified LA and LA-MS reports issued after 1962 were withheld from review.
- Classified reports by other entities were reviewed up to "L", the remainder withheld.

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The Reports Collection is housed in the basement of the main LANL library. It includes technical reports, microfiche reports, and classified reports from other entities. Of these reports produced by organizations other than LANL, we were able to review up to those whose titles Begin mtg2_1/with "L." Then the Lab decided to deny access. Now the Lab has reversed its decision and we have begun to review those reports.

Document Review at the LANL Reports Collection

- Unclassified reports by other entities were reviewed up to "P."
- The unclassified "LA" reports formerly publicly available on the Internet were reviewed by the LAHDRA team.
- Less than 1% of the unclassified reports on microfiche have been reviewed.

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Many unclassified documents were once available to the public via the Internet, but with heightened security, those documents are not publicly available anymore. We have completed review of the collection of "LA" and LA-MS" technical reports and we have reviewed up to "P" of the unclassified reports from other entities. We are evaluating how to review the reports contained on microfiche, because many of these are from a subscription service that sent copies to many sites across the country.

Document Review at the LANL Central Records Center

- The boxes of documents and rolls of microfilm that remained to be reviewed have been completed.
- With the Records Center review completed, what's the next big venue for document review?

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With the Records Center review completed, what is the next big venue? To address that question, I will ask-- do you know where Noah kept the bees when the heavy rains started falling?

The Archives

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The answer is -- in the archives. The LANL Archives contain a wide variety of historical documents that may be of relevance to off-site releases or health effects. We recently began reviewing documents at the LANL Archives.

Active Document Review

- The LANL Archives
- Completion of the Reports Collection
- The Litigation Support Database

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We are currently finishing up in the Reports Collection and reviewing Litigation Support Database documents, which we started reviewing about two weeks ago, while we are organizing our efforts for the Archives.

The LANL Archives

- We were provided listings of all the collections in the LANL Archives.
- We were provided listings of the folders within each collection.
- We reviewed these listings and selected those folders that could be relevant or had titles that did not support evaluation of relevance.
- We are reviewing the contents of the selected folders.
- We are reviewing 1% of the unselected folders as a quality control check of the process.

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We worked out a process to review potentially relevant records contained in the Archives.

The Reports Collection

- We will review unclassified reports from P through Z.
- We will review classified reports issued by other entities from L through Z.
- It may be challenging to achieve public release of some of these reports.
- We are formulating a strategy for the 1.5 million documents on microfiche.

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The Archives is a valuable collection. Its holdings are generally more organized than those of the Records Center, which contained some boxes that were well organized but others that looked like someone retired and the contents of their desk was emptied into boxes. LANL gave us a list of the collections contained in the Archives, and a list of the folders contained in each collection. We have identified those folders that seem relevant based upon their title and those that do not. We have begun to review those selected folders. To provide a quality control check, we have selected for review an additional one percent of the folders not previously selected.

To finish our efforts in the Reports Collection, we will finish review of the unclassified reports and review the classified reports issued by other entities from M through Z. It is a breakthrough that they have allowed us to review the rest of the classified reports issued by other entities. Contractors or organizations that do not even exist anymore produced some of these documents. It may be challenging to track down some of the authors to get their permission to release the documents. We are also working out a process to review the remaining microfiche. We will likely focus on subsets of the collection potentially relevant to Los Alamos operations, rather than review all of the microfiche.

The Litigation Support Database

- We were provided listings of the documents contained in the database.
- We selected documents that could be relevant and those whose titles did not support evaluation of relevance.
- Lab Counsel has provided image files for the selected documents for our review on a computer in the LAHDRA project office.
- Review of 58,000 pages of selected documents is underway.

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The litigation support database is a collection of documents relevant to lawsuits that LANL has been involved in. Over the past 3-4 years, we have been trying to develop a strategy to gain access to this resource. About a year ago, LANL provided us with a list of the documents in the collection, and we have selected documents that appear relevant and those for which relevancy cannot be determined based on title. About 58,000 pages of documents have been selected for review. The Lab provided us with a database and image files of the selected documents. Due to the nature of the collection, a large percentage of the documents in the collection are relevant to our project.

The process to bring about public release of Litigation Support Database documents is unusual, but it will work. After we view a document image file on the supplied computer and select it as relevant, we print out the document and submit it for classification and Legal review. After approval for public release, LANL provides us with a paper copy, which we scan back into an image file. The need for a paper copy for review comes mainly from the difficulty in redacting classified or private information electronically.

CM Wood: I came across the same thing with electronic version of documents saved as PDF files. You can block out the words in the image file so you can't see them, but in some cases you can still find the words by searching the electronic document.

Public: On this litigation support database, is does this include information regarding cases that occurred before 1975?

Tom Widner: Yes, it goes back quite a few years. The Lab gathered old documents and scanned them to support their efforts. The database itself is not that old, but many of the included documents are old.

CM Wood: Any time a useful document was found, the Lab scanned it and added it to the collection. The collection goes back to the 1940s. It may not be complete, but it holds records that Lab Counsel or others involved identified as useful or relevant.

Public: Are the records technical documents or legal documentation?

Claudine Kasunic: They are actual documents.

Tom Widner: Documents that would indicate legal strategies are not included. It is a pretty useful tool, and we are glad to have gained access to the collection.

Issues pertaining to document review

- Escorted access with two person limit
- Prescreening by document “owners”
- Categories of deniable information
- Reviews by title alone
- Process to appeal when records withheld
- Access to reports issued by other entities
- Classification reviewer availability

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During the last meeting, some of the issues faced by the project were identified. Since project work has resumed, we have gained more flexibility. More escorts are available, and there is more flexibility regarding the number of workers allowed in some facilities at a given time. Some contractors working in the Records Center have also been trained to serve as escorts, so they can do their work and escort at the same time.

Prescreening of documents continues, but now we have a Lab retiree, Don Milligan, doing much of the prescreening. We generally do not have to go back to the document owners.

In regards to having to review documents by title alone, we are being very careful. If the title is vague, we err on the side of safety and ask to review the document.

We are continuing to exercise our right to appeal when documents are withheld. C.M. Wood and Bob Burns have most recently reviewed documents that were withheld from us earlier.

We are again reviewing classified documents produced by other entities, but we may not have a clear path to bring about public release of some of these documents if we select them as relevant, as some of the originating entities no longer exist.

CM Wood: We worked out some of these details between the two contracts, negotiating new procedures. After Tom Widner has concluded his presentation, I will have him come back to this slide and I will explain some of the rationale.

Future Venues for Document Review

- Documents at other LANL Divisions
- Records (about LANL) at other sites
- Directed searches at LANL

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We are being tasked to identify where other records may be located. There are records scattered all over LANL in the different divisions and Technical Areas. We are trying to identify where these records are and what we need to do to gain access to them. We will likely need a lot of lead-time to work out access and put required procedures in place. We are also anticipating conducting directed searches to target specific areas where information is needed to address specific questions. We are working with CDC to plan directed searches along with systematic searches.

Preliminary Steps Towards Prioritization of Releases

- Rigorous screening is beyond the scope of this information gathering stage.
- Tasked with prioritizing historical releases that we have documented, we have performed first steps to ascertain which releases were likely most important.
- These assessments were based on releases reported by LANL, with some adjustments, and environmental and biological monitoring that was performed.

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We are taking a couple first steps to prioritize releases. A lot of what we have done to date is based on what the Lab has reported to have released. In the future, we want to compare our findings with the reported releases.

Prioritization of Airborne Releases

- Priority Index values were calculated by computing the air volume required to dilute the annual activity released to the worst-case non-occupational Maximum Permissible Concentration (MPC) per federal regulations.
- An Off-Site Releases database was created to tabulate effluent information and to link it to existing LANL documents assembled by the LAHDRA team.

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A priority index was established by looking at the dilution required to reduce reported annual releases to the maximum permissible concentrations. We have put together an off-site releases database that links to relevant documents and those we can use to perform some of our own analysis.

Public: Does the public have access to the off-site releases database?

Tom Widner: The database is described in the Interim Report and in the calculation documents that are referenced therein, but the database itself is not included. It is a handy compilation of data that is contained in other documents. We will check with the CDC to find out if we can release the off-site releases database.

Prioritization of Liquid-borne Releases

- Priority Index values were calculated by computing the volume of liquid required to dilute the annual activity released to the worst-case non-occupational MPCs.
- Based on releases asserted by LANL, Priority Indices were calculated for total plutonium, Pu-238, Pu-239, Sr-89, Sr-90, tritium, gross alpha, and gross beta radioactivity.

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Plutonium is the most important liquid-borne release.

Prioritization of Toxic Chemicals

- PRGs for soil were used to rank chemicals usually present as particulates, and PRGs for air were used to rank volatile chemicals. Soil and air PRGs were used for explosives.
- A final table presents a ranking based on both annual usage and toxicity parameter.
- This ranking suggests that releases of explosives and volatile organic chemicals were most likely to lead to off-site effects.

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Prioritization of chemicals is based on a ranking by the preliminary remediation goals established by the USEPA (PRGs). They have been ranked based on a combination of toxicity and the amounts used. Finding data on chemicals is like pulling teeth compared to locating information on radioactive substances. Regarding a lot of the high explosive compounds, the other materials used in explosive tests (such as beryllium and lead) might be of more importance than the high explosive itself from a health hazard standpoint.

A Question Area Regarding H-3 Releases

- Airborne effluent data for tritium (H-3) found range for 1967-1996, while H-3 was used at LANL as early as 1946.
- The LAHDRA team has found incident reports that document earlier H-3 release data, including almost 65,000 Ci in 1965.
- Continued assembly of data from scattered documents could help fill in the gap in data regarding past H-3 releases.

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Tritium was used as early as 1946, and we have not seen it represented in Lab release reports until 1967. We have found incident reports that describe sizable tritium releases before 1967. Tritium could be targeted for a directed search. We need more information from before 1967 to fill this information gap and allow us to evaluate the importance of tritium releases.

A Key Question Regarding Pu Releases

- LANL started up in 1943, but no records found show that LASL actually measured airborne Pu releases until 1951, when releases appear to have been substantially lower than in the 1940s.
- Stack monitoring was of low quality (by modern-day standards) until mid-1950s.
- In these early years, LASL was the lead site for production of U.S. nuclear weapon components.

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LANL started handling plutonium in 1943, but we have not found airborne effluent records before 1951. We are trying to locate data or methods to help us estimate how much plutonium could have been released during these earlier years.

An Environmental Record of Airborne Plutonium Releases

- Pu in soil has been measured by LANL scientists since the 1970s.
- Lacking effluent data for 1943 to 1951, the LAHDRA team evaluated the use of measurements of Pu in soil around LANL as indicators of past releases.

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We are looking at the amount of plutonium in soil because it largely stays there-it is not very mobile. We are gathering plutonium measurements in soils around Los Alamos and applying dispersion models to indicate what past releases would have to have been to match what is in the soil.

An Environmental Record of Airborne Plutonium Releases

- If the release was attributed to the DP Site, a median release of 12 Ci was obtained, with a factor of uncertainty of 9.
- If site releases were attributed solely to the D Building, a median release of 46 Ci was obtained, with an uncertainty factor of 5.
- If averages are calculated, airborne Pu releases from 60 Ci (DP Site) to 101 Ci (D Building) based on 37 locations.

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We need to gather more data to improve these early prioritization analyses. We are looking for more soil measurements from meaningful locations.

Plutonium in Human Body Tissues

- Our preliminary calculation indicates that excess plutonium is present in non-worker residents of Los Alamos over what would be expected from global fallout from nuclear weapons testing.
- The plutonium in Los Alamos residents appears to be due to exposures to plutonium that were earlier (longer ago) than atmospheric weapons testing exposures in the Denver population.
- We will propose directed information searches to find data needed to further this evaluation.

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Another data source is human tissue studies done by the Lab for over 35 years. Scientists were concerned about what was building up in the bodies of people from weapons testing fallout. The Lab started collecting tissue samples from people who died across the country. A paper in the journal Health Physics identified people that were sampled that lived around the Lab but did not work for the Lab. What we found so far is that plutonium is found in higher concentrations in people from the Los Alamos area than what would be expected from just fallout. Denver was used as a comparison. We compared ratios of plutonium in different body parts. Plutonium appears to have been in the bodies of Los Alamos residents longer than that in Denver area residents. We don't yet know who the

human tissue study subjects were or where they lived, but we have been able to figure out some from cemetery records and death notices. We hope to be able to characterize the plutonium in people's bodies as a function of direction and distance from the key emission sources.

Summary

- The process of collection of relevant information at Los Alamos has not been completed. Significant collections remain.
- While we have no answers at this time about potential health risks from Los Alamos releases, we have identified several classes of releases that we believe warrant closer examination.

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We are not done, but we have made a lot of progress. We are encouraged by the recent level of support from Lab personnel. We are glad to now be working in the LANL Archives. During our work there, we are being careful with these valuable documents. As required, we are wearing cotton gloves, laying documents flat when we read them, and keeping food and drinks out of the area. We are reviewing documents produced by Oppenheimer, Fermi, and other legends of science--we want to be careful with these records too.

In closing, we do not have final answers yet. We will look at adding directed searches to our systematic approaches. To support this, we are identifying potential sources of information for directed searches.

Public Comments / Questions and Answers

Public: What is the term of the new contract, and how did the stand-down affect the contract?

Phil Green: The new contract just happened to be awarded on the fiscal year. It will be a five-year contract. Initially, Tom estimated the amount of work that can be done. Work can change as we get better access to documents for review. It is safe to estimate that the next 12-month period, beginning in September, will be the period of our greatest access and progress. In subsequent years, as the puzzle builds-- when we find corners and edges, we can focus on materials or operations that become more evident as areas that need to be studied. During the next year, we expect to award \$1.5 million to continue this effort.

Tom Widner: The Lab has about an equal amount of funding to support the project to support including classification reviews and providing of escorts.

Public: Did the stand down cost the project money-will there be problems to roll over funds?

CM Wood: The work delay didn't hurt this project that much. I issued a task order to have Shonka Research Associates in Atlanta scan and process a "backlog" of documents that had accumulated. The stand-down had some

benefit. We worked with the new regime that had to write new rules that improved access to the documents. The process developed should make the study more defensible at End mtg2_1/of the project. I would like to get all the documents reviewed and moved off-site. Then we can continue the work off-site. Previously, the document summary form had to be filled in before a document could be released. Now we can write the title and cursory information without having to write a full abstract before release. We don't need an escort to write the abstract anymore.

Issues pertaining to document review

- Escorted access with two person limit
- Prescreening by document "owners"
- Categories of deniable information
- Reviews by title alone
- Process to appeal when records withheld
- Access to reports issued by other entities
- Classification reviewer availability

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CM Wood: The Lab has a list of the collections contained in the Archives. Each collection may include 30-45 boxes. We have reviewed the titles. Some of these titles clearly state the contents of a collection, and we could determine if the collection needed to be reviewed at or not. Some of the titles are unclear, so we have indicated that the box needs to be checked to determine if the entire collection needs to be reviewed or not.

When they got to the microfiche, they would pre-review the collection. They found that much of the information contained in the microfiche is worthless. So during our process, we first look at titles, then we look at the documents and apply specified criteria to determine what must be reviewed. For example, if we determine a collection contains payroll records, we don't need to look at those records.

Public: I was surprised that the recently released ATSDR health appraisal report states that the health risk from LANL does not warrant further study.

Tom Widner: We understand that ATSDR is addressing doses from current conditions, and will defer to what this CDC/NCEH study finds regarding historical releases and health risks.

Phil Green: I am not a scientist, and I cannot speak to their assertions as to what is significant. I asked for their report, which was a technical review. I went through it, looking to see how our project was referenced. What I got out of it, is that they did say there was no health risk for people living near the site. But it hedged by saying that our report may change their evaluation. Our project is mentioned throughout the document.

Public: One of our concerns is that previous drafts noted possible effects. This newer version appears to be a sanitized version.

Phil Green: I noted the executive summary did not address the concerns of the community, but the full report does in my opinion. That document should be available to you.

CM Wood: I have not read the report yet, and I have not followed their work. I can bring one of those guys to our next meeting. There is a division of labor--they do a health risk study, we do a dose reconstruction. I can set up communication either through e-mail or by attendance at the next meeting.

Public: You mentioned that the next venue would include records at other LANL divisions. How well are the records from the other divisions represented in the Archives?

Tom Widner: Most of the records that I have seen in the Archives are older records. It is difficult to track the changes in the names and organization of Lab divisions and groups over the years. We plan to talk to people from other divisions to find out what records they have.

Public: What is the percentage of documents that have been deemed worthy to review?

Tom Widner: Generally, in the Archives, we have selected 30-40 percent of folders. In some collections, we have identified almost 100 percent. Some documents are clearly not relevant, for example, "Oppenheimer family photos."

Public: Several years ago I reviewed a collection of occurrence reports that was housed in a vault at TA-35 in ESH-12 under the custody of John Voltin. I don't see them referenced in your accidents and incidents table. Will you come out with a chronology of off-site incidents based on the occurrence reports?

Tom Widner: We reviewed that incident report collection as part of our review of ES&H; Division records. To date, our chronology of accidents and incidents is based on Health Division reports. We will expand the chronology to include incidents from the files you are referring to if they are relevant to off-site releases and are not already included. A majority of incidents involve personal injuries or contamination within buildings, with no obvious route for off-site exposure.

CM Wood: I agree we should work at developing a chronology. I have had access to Department of Energy (DOE) unexplained occurrence reports. Most, I admit, are like a foot run over or a hurt back. Anything of consequence is included in our study because there is a lot of supporting information available. Therefore, we are not as excited about the collection as we originally anticipated.

Public: I reviewed the collection in ESH-12 for my dissertation, focusing on the 1970s. In the 1970s, there were about 90 incidents that do appear to have resulted in off-site releases.

CM Wood: These significant incidents are usually documented in multiple reports and correspondence.

Public: Not always in detail. I hope you folks take each release and apply your expertise to see if the records are useful to compare to reports. I agree that most information is worker related.

CM Wood: We do continue to flag information relevant to worker related issues, and share it with NIOSH.

Tom Widner: Thanks for coming. Please sign and request a copy of the Interim Report if you have not received one. We will stick around to talk to you individually if you so desire.

How do I view different file formats (PDF, DOC, PPT, MPEG) on this site?

(<https://web.archive.org/web/20230207123403/https://www.cdc.gov/Other/plugins/>)

(<https://web.archive.org/web/20230207123403/https://www.cdc.gov/Other/plugins/#pdf>)

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