

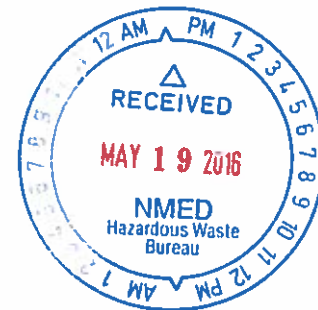


**Department of Energy**  
**National Nuclear Security Administration**  
**Sandia Field Office**  
**P.O. Box 5400**  
**Albuquerque, NM 87185**



**MAY 16 2016**

**CERTIFIED MAIL-RETURN RECEIPT REQUESTED**



Mr. John E. Kieling  
 Chief  
 Hazardous Waste Bureau  
 New Mexico Environment Department  
 2905 Rodeo Park Drive East, Bldg. 1  
 Santa Fe, New Mexico 87505

**Subject:** Historical Records Disclosure Affirmation: *Contents of Solid Waste Management Unit 76, Mixed Waste Landfill, Sandia National Laboratories, May 2016*

Dear Mr. Kieling:

Enclosed is the subject disclosure which confirms the prior release of all historical records describing the contents of the Mixed Waste Landfill (MWL) located in Technical Area-III at Sandia National Laboratories/New Mexico (SNL/NM). This MWL Disclosure Affirmation is being submitted by the Department of Energy/National Nuclear Security Administration (DOE/NNSA) and Sandia Corporation (Sandia) to the New Mexico Environment Department (NMED) as required by the Final Order In the Matter of Proposed Permit Modification for Sandia National Laboratories EPA ID No. NM5890110518 to Determine Corrective Action Complete with Controls at the Mixed Waste Landfill, No. HWB 15-18 (P), issued by Environment Secretary Ryan Flynn on February 12, 2016.

The NMED Final Order granting Corrective Action Complete with Controls for the MWL became effective on March 13, 2016, and included a condition requiring the DOE/NNSA and Sandia to provide all historical records that describe material placed in the MWL. In accordance with the Final Order condition, the DOE/NNSA and Sandia are providing the enclosed MWL Disclosure Affirmation stating that all MWL historical records were previously disclosed as of May 20, 2002. The dates the records were disclosed and the identity of who received the records is also provided, along with additional information documenting how this issue has been addressed in the extensive MWL Administrative Record.

If you have questions, please contact me at (505) 845-6036 or David Rast of our staff at (505) 845-5349.

Sincerely,

Jeffrey P. Harrell  
 Manager

Enclosure  
 cc: See Page 2

Mr. John E. Kieling

MAY 16 2016

2

cc w/enclosure:

David Cobrain

NMED/HWB

2905 Rodeo Park Dr. East, Bldg. 1, Santa Fe, New Mexico 87505

Brian Salem

NMED/HWB

121 Tijeras Avenue, NE, Albuquerque, New Mexico 87102-3400

Susan Lucas-Kamat, NMED/DOE OB, MS-1396

cc w/o enclosure:

John Cochran, SNL/NM

David Miller, SNL/NM

Michael Mitchell, SNL/NM

Joe Estrada, SFO/ENG

David Rast, SFO/ENG

675313

# CERTIFICATION STATEMENT FOR APPROVAL AND FINAL RELEASE OF DOCUMENTS

**Document Title:** Historical Records Disclosure Affirmation: Contents of Solid Waste Management Unit 76, Mixed Waste Landfill, Sandia National Laboratories, May 2016

I certify under penalty of law that these documents were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.



Signature

5/3/16

Date

**Peter B. Davies, Director**  
Geoscience, Climate, and Consequence Effects  
Center 6900  
Sandia National Laboratories/New Mexico  
Albuquerque, New Mexico 87185  
Operator  
and



Signature

5/16/16

Date

**Jeffrey P. Harrell**  
U.S. Department of Energy  
National Nuclear Security Administration  
Sandia Field Office  
Owner and Co-Operator



## Historical Records Disclosure Affirmation: Contents of Solid Waste Management Unit 76, Mixed Waste Landfill Sandia National Laboratories

### Contents

Contents .....	1
Introduction.....	1
Background .....	2
DOE and Sandia Affirmation.....	2
NMED Inventory Review and December 2004 Public Hearing.....	3
July 2015 Public Hearing.....	5
Summary and Conclusion .....	6
MWL Administrative Record: Inventory Information .....	7

### Introduction

This Historical Records Disclosure Affirmation confirms the prior release of all historical records describing the contents of the Mixed Waste Landfill (MWL) located in Technical Area III at Sandia National Laboratories, New Mexico (SNL/NM) and is being submitted to New Mexico Environment Department (NMED) as required by the Final Order *In the Matter of Proposed Permit Modification for Sandia National Laboratories EPA ID No. NM5890110518 to Determine Corrective Action Complete with Controls at the Mixed Waste Landfill (MWL), No. HWB 15-18 (P)* (February 2016 Final Order). The NMED Final Order granting Corrective Action Complete (CAC) with Controls status for the MWL was issued by Secretary Ryan Flynn on February 12, 2016 and became effective on March 13, 2016.

In adopting with modifications the recommendation provided in the Hearing Officer's Report dated October 13, 2015, the Secretary specifies in the Final Order that the U.S. Department of Energy (DOE) and Sandia Corporation (Sandia), collectively the Applicants,

“...provide all historical records that describe material placed in the MWL, including but not limited to internally generated waste manifests, waste stream descriptions, chemical analyses for compatibility issues, waste volumes, maps of waste disposition, interviews with workers who were involved with the generation or disposal of waste, and any other record of any kind that is not specifically listed above. If any records responsive to this Order are withheld for any reason, then Applicants must provide a privilege log describing the nature of the document (letter, memo, email, etc.), the identity of the person who created the record (to the extent this information is available), the date the record was created (to the extent this information is available), the legal justification for withholding the record and the identities of all the people involved in making the determination that the record should be withheld. If Applicants determine that all historical records describing the material placed in the MWL has [*sic*] already been disclosed, then Applicants shall affirmatively state this in writing and include the dates the records were disclosed and the identity of who received the records.”

## Background

The MWL is a 2.6 acre solid waste management unit that accepted containerized and other low-level radioactive waste and minor amounts of mixed waste from March 1959 to December 1988. Approximately 100,000 cubic feet of low-level radioactive and mixed waste containing approximately 6,300 curies (at the time of disposal) of radioactivity were disposed in the MWL. Classified wastes were buried in unlined cylindrical pits in the 0.6 acre classified area, and unclassified wastes were buried in shallow unlined trenches in the 2.0 acre unclassified area.

The MWL was extensively investigated starting in 1989 with the Phase 1 Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). A more extensive Phase 2 RFI was conducted from 1992 to 1995 to determine the contaminant source, define the nature and extent of contamination, identify potential contaminant transport pathways, evaluate potential risks, and provide the basis for final remedy selection for the MWL.

During the Phase 2 RFI a detailed inventory investigation was completed that addressed data gaps identified in the Phase 2 RFI Work Plan (dated March 1993). Records that were previously reported as lost or destroyed were found in storage and reviewed, and interviews with former and current SNL/NM personnel were conducted that helped clarify and document disposal practices. The Phase 2 RFI summary inventory was developed from a thorough review of all MWL classified and unclassified disposal records, interviews with current (at that time) and retired employees, solid waste information sheets, and nuclear material management records. Additional supporting documentation used to compile the summary inventory included historic waste management plans and photographs, internal memoranda, Solid Waste Information Management System data base printouts, and Sandia MWL project engineer file notes. NMED approved the Phase 2 RFI Report in 2002, after DOE and Sandia responded to all NMED technical comments.

A four-day public hearing was held by the NMED in December 2004 as part of the Class 3 Permit Modification for Corrective Measures (i.e., final remedy selection). The resulting Hearing Officer's Report and final NMED decision selecting the final remedy and defining corrective action conditions for the MWL are documented in the Final Order *In the Matter of Request for a Class 3 Permit Modification for Corrective Measures for the MWL, No. HWB 04-11(M)* issued by NMED Secretary Ron Curry on May 26, 2005 (May 2005 Final Order). After DOE and Sandia completed all corrective action conditions stipulated in the May 2005 Final Order, NMED held a four-day public hearing in July 2015 as part of the Class 3 Permit Modification for a determination of CAC with Controls for the MWL. The resulting Hearing Officer's Report and final NMED decision granting CAC with Controls status for the MWL is documented in the February 2016 Final Order.

In accordance with the February 2016 Final Order, the DOE and Sandia are providing the requested information concerning disclosure of all MWL waste inventory information. In addition, DOE and Sandia are providing additional information documenting how this issue has been previously addressed in the extensive MWL Administrative Record.

## DOE and Sandia Affirmation

DOE and Sandia affirm to having previously provided and made available to the public all historical MWL disposal records and supporting information. An inventory information disclosure is provided in tabular form as Table 1 at the end of this Enclosure. The following discussion provides details of the MWL inventory information disclosure. Subsequent sections clarify the review, consideration, and final

rulings that occurred during the corrective action regulatory process as documented in the MWL Administrative Record.

As summarized in Table 1, the complete set of MWL inventory disposal records (~5,200 total pages) and supporting information (~580 total pages) were provided to Citizen Action New Mexico (CANM) in four transmittals dated April 16, July 3, and October 1, 2001 and May 20, 2002 in response to Freedom of Information Act (FOIA) requests dated June 7 and July 11, 2000. All of this information was also made available to the public at the same time it was provided to CANM; these records were placed in the Government Documents collection at the University of New Mexico, Zimmerman Library.

There are no time gaps in the MWL disposal records for the operational period (1959 to 1988). All formally classified disposal records were declassified (i.e., redacted) prior to being released to CANM and the public. No records or information were withheld. The only redacted (i.e., blacked out) information on the classified records were project names, project locations, weapon numbers, and/or weapon component descriptions (e.g., shape or design information). No information relevant to establishing the waste inventory was redacted (e.g., waste material descriptions/types, chemical and/or radiological information, volume and/or mass, compatibility and combustible information). Additional supporting documentation released to CANM and the public in response to these FOIA requests included notes from interviews with current (at that time) and retired employees, historic waste management plans and photographs, internal memoranda, Solid Waste Information Management System data base printouts, and the Sandia MWL project engineer's notes. This comprehensive set of available MWL inventory records and supporting information was the source information used to compile the Phase 2 RFI summary inventory discussed below.

The MWL Phase 2 RFI Report was submitted to NMED in September 1996, and NMED provided technical comments on September 11, 1997. In response to NMED technical comments, DOE and Sandia submitted more detailed information regarding MWL disposal practices and the waste inventory in June 1998 in the document, *"Responses to NMED Technical Comments on the Report of the Mixed Waste Landfill Phase 2 RCRA Facility Investigation, Dated September 1996"* (two volume set of comment responses). The responses to NMED General Comments 1, 2, and 3a in Volume 1 provided specific information on the disposal cells (i.e., pits and trenches), disposal and backfill methods, a summary of typical waste materials, and the various sources of inventory information. Attachment 2-1 of this comment response submittal includes a map of the disposal area identifying each pit and trench with a unique designation, along with a detailed tabulated summary of the MWL waste inventory for each disposal pit and trench.

The Phase 2 RFI summary inventory was developed in 1998 from a detailed review of all available MWL inventory records and supporting information that were later compiled and released to CANM and the public in 2001 and 2002. Considerable effort was made to maintain consistency in nomenclature and units in the Phase 2 RFI summary inventory.

## **NMED Inventory Review and December 2004 Public Hearing**

NMED performed two inventory information reviews in 2000 and 2003. In July 2000, an NMED Oversight Bureau staff member who had obtained a security clearance examined a random sample of classified disposal records (original records, not declassified for release) and cross-checked these records against the Phase 2 RFI summary inventory. The purpose of this review was to determine whether the published summary inventory contained the waste items and radioactive materials that are documented in the classified records. Although this review addressed only a sample of the classified records, in all cases the specific items or radionuclide inventories listed on the classified disposal records were verified in the summary inventory. This review also confirmed that the main difference between the classified disposal

records and unclassified summary inventory was that project names and places or weapon numbers were not included on the unclassified summary inventory. The NMED Oversight Bureau gained confidence from this review that the classified disposal information was accurately included in the unclassified Phase 2 RFI inventory summary.

In 2003, the NMED performed a more thorough review of classified and unclassified information regarding nuclear fuel and experiments conducted at the Annular Core Research Reactor (ACRR) in Technical Area V at SNL/NM. This review was requested by CANM based on internal Sandia and DOE memoranda written in 1997 (three memos dated February 20, 1997; March 20, 1997; and April 1, 1997) that it had received as part of the FOIA responses detailed in Table 1. The memoranda discussed four stainless steel test canisters related to nuclear fuel tests performed at the ACRR that were disposed in Pits 35 and 36 of the MWL. CANM's concerns at the time, which it continues to assert to the present time, were that these memoranda indicate irradiated nuclear fuel material and metallic sodium were disposed of in the MWL. CANM also asserts that these memoranda are evidence that other ACRR experiment canisters containing nuclear fuel material were disposed of at the MWL (i.e., in addition to the four canisters documented in Pits 35 and 36).

The NMED Oversight Bureau documented its review in the report, *Nuclear Fuel Assessment Project Summary*, dated June 30, 2003. The report details a thorough review of SNL/NM technical documents, nuclear material tracking information, interviews with Sandia personnel responsible for ACRR testing and tracking of nuclear material after the experiments, and personal inspections of experiment items in storage. The focus of this review was the tracking of ACRR experiment test packages containing nuclear fuel after completion of the ACRR tests. In some cases these experiment packages also contained metallic sodium, which was used as a coolant in some of the tests. All ACRR tests involved multiple layers of containment for the nuclear fuel test package (i.e., containers inside of containers). The summary of findings in the NMED Oversight Bureau report includes the following conclusions:

- Four canisters from two "Source Term" experiments were disposed of in the MWL.
- The nuclear fuels from these experiments were stabilized in epoxy and removed from the canisters prior to disposal.
- All nuclear fuels, whether tested or not, are considered Special Nuclear Material and any amount greater than 0.5 grams must be tracked in accordance with DOE requirements.
- All nuclear fuel, regardless of the thermal stress induced during the experiments, remained in the primary containment/container.
- NMED Oversight Bureau verified that all experimental packages containing spent fuel (and in some cases metallic sodium) were accounted for in storage (i.e., not disposed in the MWL).

The MWL inventory was a major topic at the December 2004 Public Hearing for selection of the MWL final remedy. All disposal records and supporting inventory information that were released to CANM and the public in 2001 through 2002 were discussed and considered. In addition, the 2000 and 2003 NMED inventory reviews and the Sandia and DOE internal memoranda from 1997 and 1998 were also addressed in detail along with the issue of high-level radioactive waste disposal. During the Public Hearing, Sandia provided testimony regarding the extensive disposal records from the operational period, and additional investigation efforts performed to establish the MWL inventory (e.g., interviews with current and former employees). Sandia testimony clarified that the MWL waste inventory was reasonably accurate and complete, did not contain material meeting the definition of high-level radioactive waste, and along with extensive investigation results and 14 years of groundwater monitoring results, was sufficient for a final remedy determination. Sandia testimony also clarified the following information related to the 1997 through 1998 internal memoranda.



- The four stainless steel canisters disposed of in Pits 35 and 36 did not contain the nuclear fuel experiment package, they were empty containers.
- Information in the memoranda indicating the four stainless steel canisters may have contained residual metallic sodium was incorrect after further review and investigation.
- Sandia found no evidence that any other ACRR test canisters containing tested nuclear fuel material were disposed of in the MWL.

After consideration of all testimony, evidence, and the extensive Administrative Record, NMED Secretary Ron Curry issued the May 2005 Final Order that fully adopted the April 2005 Hearing Officer's Report, selected the MWL final remedy (i.e., vegetative soil cover with biointrusion barrier), and defined corrective action conditions to be completed by DOE and Sandia. The Hearing Officer's Report summarized the testimony regarding the MWL inventory, and concluded the MWL inventory was reasonably accurate and complete and did not contain high-level radioactive waste. Corrective action conditions were incorporated in the May 2005 Final Order to address inventory uncertainty, including fate and transport modeling, long-term monitoring with triggers for future remediation, and five-year data review and evaluation reports.

On June 24, 2005, CANM filed a notice of appeal to challenge the May 2005 NMED Final Order in the New Mexico Court of Appeals. Part of this legal challenge asserted that the NMED erred in making a decision based on incomplete and inaccurate information, including an inadequate waste inventory. On December 19, 2007, the New Mexico Court of Appeals upheld the decision in the Final Order. CANM appealed the ruling and on February 25, 2008 the New Mexico Supreme Court denied further review.

## **July 2015 Public Hearing**

After DOE and Sandia completed all corrective action conditions stipulated in the May 2005 Final Order, another four-day public hearing was held in July 2015 as part of the Class 3 Permit Modification for CAC with Controls determination for the MWL. Prior to this hearing, NMED held informal negotiations on April 29 and May 4, 2015 and invited all parties that requested a public hearing, as well as DOE and Sandia. DOE and Sandia provided disposal records for the operational time period of 1986 through 1988 at the May 4 meeting to both CANM and NMED, and clarified that these records had been previously provided to CANM on May 20, 2002 as part of the previous inventory information FOIA responses (see Table 1).

During the July 8 through 11, 2015 public hearing, Sandia provided testimony specifically addressing CANM's and other Parties' testimony asserting that the May 2005 Final Order should be overturned due to MWL inventory uncertainty, and because there was "new evidence" indicating high-level radioactive waste and metallic sodium from ACRR experiments were disposed in the MWL. Sandia clarified these assertions were previously addressed in testimony at the December 2004 Public Hearing but testified again as summarized below.

- Detailed inventory information was available to the Hearing Officer in December 2004 and to the public prior to December 2004 (Reiser Rebuttal 7-8-15 I Tr. At 94:9-95:8 and Reiser Rebuttal at 4:10-6:21)
- The MWL inventory and potential for high-level radioactive waste was considered at the December 2004 public hearing and documented in Hearing Officer's Report (Reiser Rebuttal 7-8-15 I Tr. 95:11-17 and Reiser Rebuttal at 7:1-9:20)

- The “new evidence” of high-level radioactive waste and metallic sodium presented in Parties’ exhibits do not provide new, relevant information regarding the contents of wastes in the MWL (Reiser Rebuttal 7-8-15 I Tr. at 95:18-24 and 97:16-20; Reiser Rebuttal at 10:1-11:12; Strong Rebuttal 7-8-15 I Tr. at 182:4-10; Strong Rebuttal at 4:17-6:5; Farnum Rebuttal 7-8-15 I Tr. at 188:2-7; and, Farnum Rebuttal at 3:4-5:3)
- Clarification and correction of information contained in the four 1997 through 1998 internal Sandia and DOE memoranda (dated February 20, March 20, and April 1, 1997; and November 20, 1998) regarding the potential presence of residual metallic sodium in the four test canisters disposed in Pits 35 and 36; these canisters did not contain residual sodium (Reiser Rebuttal 7-8-15 I Tr. at 95:18-96:5 and Reiser Rebuttal at 7:18-8:10)
- Clarification of the cause of elevated surface-contact radiation reading at Pits SP-4, Pit 35, and Pit 36, and how it was not related to the presence of high-level radioactive waste related to the four canisters in Pits 35 and 36 (Reiser Rebuttal 7-8-15 I Tr. at 96:22-97:2 and Reiser Rebuttal at 8:17-9:5)

As documented in the July 2015 Public Hearing proceedings, all MWL disposal records (~5,200 records) and supporting inventory information (~580 pages) were provided to CANM and made available to the public by 2002, and were part of the record and considered at the December 2004 Public Hearing (Reiser Rebuttal at 5:20-6:21). These disposal records were also referenced by CANM as “CANM Exhibit 3” although CANM could not produce a copy for the Hearing Officer. Instead Sandia provided a copy to the Hearing Officer on July 11, 2015. The specific disposal records cited as “new evidence” of high-level radioactive waste disposal (CANM Exhibits 1 and 2; Dr. Nuttall’s testimony and Exhibits 1 and 3), were all taken from the larger set of disposal records released by DOE and Sandia in 2001 and 2002. The Sandia subject matter expert responsible for tracking Special Nuclear Material confirmed the NMED Oversight Bureau findings reported in June 2003 (Strong Rebuttal at 4:17-6:5) and clarified the information on the disposal records cited by CANM and Dr. Nuttall did not indicate disposal of high-level radioactive waste (Strong Rebuttal at 4:1-5:6).

## Summary and Conclusion

DOE and Sandia affirm having disclosed and made available to the public all historical MWL inventory records and information as of May 20, 2002. This information was used to compile a Phase 2 RFI summary inventory that provided information on waste materials disposed of in each MWL pit and trench, and was submitted to the NMED in June 1998. The MWL classified disposal records and SNL/NM Special Nuclear Materials tracking information were reviewed by NMED in 2000 and 2003, and these NMED reviews were considered at the December 2004 and July 2015 public hearings. The MWL inventory was determined to be reasonably complete and accurate by the December 2004 Hearing Officer and NMED Secretary Ron Curry, as documented in the May 2005 Final Order selecting the final remedy and conditions for completion of corrective actions at the MWL that addressed remaining inventory uncertainty. The July 2015 Hearing Officer concluded all MWL corrective action conditions had been completed and recommended approval of the DOE and Sandia Class 3 Permit Modification Request for CAC with Controls status for the MWL in his October 13, 2015 report. This Historical Records Disclosure Affirmation regarding the contents of MWL inventory, with information included within the MWL Administrative Record, is provided by the DOE and Sandia in accordance with the Final Order issued on February 12, 2016 by the NMED Secretary Flynn.

**TABLE I. ADMINISTRATIVE RECORD: INVENTORY INFORMATION**

Transmittal Date	Total Page Count*	Description of Inventory Information	Transmitted To
April 16, 2001	2950 (2946) [0]	First letter (4 pages) with listing/index for enclosures responding to Citizen Action New Mexico Freedom of Information Act requests dated June 7 and July 11, 2000. Includes Classified Redacted Information. Two enclosures 1. Dump Records 1964-1985 (2763 pages) 2. Reports of Expended Materials - 1959-1971(183 pages)	Mr. Miles Nelson and Ms. Sue Dayton
July 3, 2001	567 (0) [560]	Second letter (7 pages) with listing/index of enclosure responding to Citizen Action New Mexico Freedom of Information Act requests dated June 7 and July 11, 2000. One enclosure 1. Copies of 116 documents, including file notes, photographs, interview notes, internal memoranda, etc. (560 pages without counting listing/index table, which is 4 pages and included twice. Letter states 562 pages)	Mr. Miles Nelson and Ms. Sue Dayton
October 1, 2001	1516 (1,495) [17]	Third letter (4 pages) with enclosures responding to Citizen Action New Mexico Freedom of Information Act requests dated June 7 and July 11, 2000. Includes Classified Redacted information (4 blank pages in transmittal letter not included in total page count). Four enclosures 1. SNL's record management info, Copy of Sandia Lab News - Vol 13, No. 7 - 3/31/61 (10 pages) 2. Documents for interview with J. Fleck, Albuquerque Journal (7 pages) 3. Disposal burial records 1972-1975 (300 pages) 4. Disposal burial records 1964-1975 (1,195 pages - letter states 1,156 pages)	Mr. Miles Nelson and Ms. Sue Dayton
May 20, 2002	822 (816) [0]	Fourth Letter (6 pages) with listing/index of Radioactive & Toxic Disposal Sheets responding to Citizen Action New Mexico Freedom of Information Act requests dated June 7 and July 11, 2000. Includes Classified Redacted Information. One enclosure 1. Listing of 39 enclosed documents - redacted classified and unclassified disposal records for  2. Radioactive & Toxic Material Disposal Sheets 1976 - 1988 (816 pages)	Mr. Miles Nelson and Ms. Sue Dayton
<b>TOTAL PAGES Disposal Records:</b>	<b>5,257</b>	Notes: *Includes transmittal letter and listing/index pages in total. Number in parenthesis is the number of disposal records. Number in brackets is number of supporting document pages.	
<b>TOTAL PAGES Supporting Records:</b>	<b>577</b>		

