

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



MAR 1 2 2021

Mr. Kevin Pierard Chief Hazardous Waste Bureau New Mexico Environment Department 2905 Rodeo Park Dr. East, Bldg. 1 Santa Fe, New Mexico 87505

Subject: Submittal of Solid Waste Management Units and Areas of Concern Annual Long-Term Monitoring and Maintenance Report for Calendar Year (CY) 2020, Sandia Number NM5890110518

Dear Mr. Pierard:

Enclosed is the Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) Annual Long-Term Monitoring and Maintenance Report for CY 2020 for submittal to the New Mexico Environment Department (NMED) Hazardous Waste Bureau. This satisfies the annual reporting requirement of Attachment M, Section M.4 of the Hazardous Waste Facility Operating Permit for Sandia National Laboratories, New Mexico (SNL/NM).

This report documents the conditions of the SNL/NMs SWMUs subject to the requirements of Permit Attachment M. This report demonstrates the effectiveness of SNL/NMs administrative and physical safety controls employed at the SWMUs and AOCs during CY 2020.

If you have questions, please contact Anastasia Fox of our staff at (505) 553-4054.

Sincerely,

Jeffrey P. Harrell

Manager

Enclosure

cc: See Page 2

### MAR 1 2 2021

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Submittal of Solid Waste Management Units and Areas of Concern Annual Long-Term Monitoring & Maintenance Report for Calendar Year 2020, Sandia National Laboratories/New Mexico, Resource Conservation and Recovery Act Facility Operating Permit

> Sandia National Laboratories Albuquerque, New Mexico EPA ID No. NM5890110518

### **CERTIFICATION STATEMENT**

I certify under penalty of law that this document and all attachments 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.

Paul E. Shoemaker, Senior Manager Defense Waste Management Programs National Technology & Engineering Solutions of Sandia, LLC Albuquerque, New Mexico Operator Date signed

Jeffrey P. Harrell, Manager U.S. Department of Energy National Nuclear Security Administration Sandia Field Office Owner Date signed



# SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN ANNUAL LONG-TERM MONITORING AND MAINTENANCE REPORT FOR CALENDAR YEAR 2020

SANDIA NATIONAL LABORATORIES, NEW MEXICO

March 2021





# United States Department of Energy Sandia Field Office

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### SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN ANNUAL LONG-TERM MONITORING AND MAINTENANCE REPORT FOR CALENDAR YEAR 2020

- Facility: Solid Waste Management Units and Areas of Concern
- Location: Sandia National Laboratories Albuquerque, New Mexico
- **EPA ID No.:** NM5890110518
- Permit Basis:Resource Conservation and Recovery Act Facility Operating<br/>Permit, effective February 26, 2015
- Owner: United States Department of Energy Sandia Field Office Technical Contact: Mr. William V. Wechsler Assistant Manager for Engineering U.S. Department of Energy, Sandia Field Office P.O. Box 5400/MS 0184 Albuquerque, NM 87185-5400 (505) 845-4262 William.Wechsler@nnsa.doe.gov
- Operator: National Technology & Engineering Solutions of Sandia, LLC Technical Contact: Dr. Christi Leigh, Manager Environmental Restoration and Stewardship Sandia National Laboratories P.O. Box 5800/MS 1103 Albuquerque, NM 87185-1103 (505) 844-3185 cdleigh@sandia.gov

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# ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
CY	calendar year
DOE	U.S. Department of Energy
KAFB	Kirtland Air Force Base
LTMM	Long-Term Monitoring and Maintenance
MWL	Mixed Waste Landfill
NMED	New Mexico Environment Department
Permit	Resource Conservation and Recovery Act Facility Operating Permit
SNL/NM	Sandia National Laboratories, New Mexico
SWMU	Solid Waste Management Unit

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### EXECUTIVE SUMMARY

The Solid Waste Management Units and Areas of Concern (SWMUs/AOCs) Annual Long-Term Monitoring and Maintenance (LTMM) Report for Calendar Year (CY) 2020 details the surveillance of site conditions and maintenance of institutional controls for 24 SWMUs/AOCs at Sandia National Laboratories/New Mexico (SNL/NM). These measures address the requirements of the SNL/NM Resource Conservation and Recovery Act (RCRA) Facility Operating Permit, effective February 26, 2015, as revised and updated (herein referred to as the Permit). Requirements for SWMUs/AOCs are specified in Permit Attachment M, "Long-Term Monitoring and Maintenance Plan for SWMUs/AOCs Granted Corrective Action Complete with Controls." This report does not address measures taken for SWMU 76, Mixed Waste Landfill (MWL), which adheres to the approved MWL LTMM Plan, Section 4.8.1, which requires a separate annual report that will be submitted to the New Mexico Environment Department by June 30, 2021.

Site conditions observed during the 2020 Permit-required annual site inspections did not determine that maintenance or repair activities were needed at 22 of the SWMUs/AOCs. However, two notification signs were replaced due to excessive weathering of the signs and one other sign was physically damaged. All damaged signs were replaced with new signs.

Based upon the inspections performed and site conditions observed, the administrative and physical institutional controls in place at the SWMUs/AOCs during CY 2020 are effectively providing continued protection of human health and the environment.

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## 1.0 INTRODUCTION

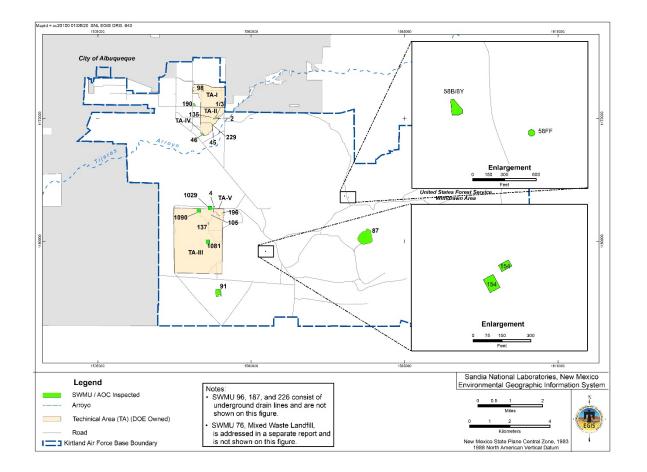
Sandia National Laboratories/New Mexico (SNL/NM) is a multimission laboratory currently managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's (DOE) National Nuclear Security Administration, SNL/NM is located within the boundaries of Kirtland Air Force Base (KAFB), immediately southeast of the City of Albuquerque in Bernalillo County, New Mexico.

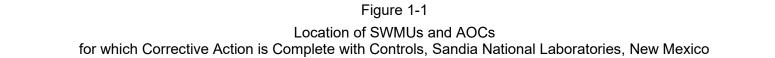
Surveillance of site conditions and maintenance of institutional controls are necessary for continued protection of human health and the environment at 25 Solid Waste Management Units and Areas of Concern (SWMUs/AOCs) that have undergone corrective action (Figure 1-1) at SNL/NM. These SWMUs/AOCs, together with the surveillance and institutional controls required for each, are specified in Attachment M of the Resource Conservation and Recovery Act Facility Operating Permit (Permit) (New Mexico Environment Department [NMED] January 2015), as revised and updated.

This report presents information for 24 of the SWMUs/AOCs at SNL/NM. It does not present the relevant monitoring and maintenance activities for SWMU 76, Mixed Waste Landfill (MWL). Those activities are detailed in the approved MWL Long-Term Monitoring and Maintenance (LTMM) Plan, Section 4.8.1 (SNL/NM March 2012), which requires a separate annual report that will be submitted to the NMED by June 30, 2021.

### 1.1 Background

Corrective actions and continued management of the SWMUs/AOCs with NMED-approved Corrective Action Complete with Controls status are conducted in accordance with the requirements of the Permit. Each SWMU/AOC at SNL/NM is listed in one of four tables that comprise Permit Attachment K, "Solid Waste Management Units and Areas of Concern." Figure 1-1 of this Annual LTMM Report shows the locations of the SWMUs/AOCs requiring institutional controls; these are listed in Permit Attachment K, Table K-3 "Solid Waste Management Units and Areas of Concern for which Corrective Action is Complete with Controls." The comprehensive requirements for monitoring and maintenance of long-term institutional controls at the identified SWMUs/AOCs are specified in Permit Attachment M, "Long-Term Monitoring and Maintenance Plan for Solid Waste Management Units and Areas of Concern Granted Corrective Action Complete with Controls," which includes a list of the relevant SWMUs/AOCs. A summary of the associated surveillance and control requirements is included in Permit Attachment M, Table M-1, "Summary of Institutional Controls for Solid Waste Management Units and Areas of Concern Requiring Controls."





### 1.2 Purpose and Scope

The purpose of this report is to document surveillance and maintenance of controls activities conducted during calendar year (CY) 2020. The reporting period extends from January 1 to December 31 of each CY. Table 1-1 and Figure 1-1 show the SWMUs/AOCs addressed in this Annual LTMM Report.

# Table 1-1List of SWMUs and AOCs for whichCorrective Action is Complete with ControlsSandia National Laboratories, New Mexico

SWMU or AOC Number	SWMU or AOC Name
1	Radioactive Waste Landfill
2	Classified Waste Landfill (TA-II)
3	Chemical Disposal Pit
4	LWDS Surface Impoundments
45	Liquid Discharge (Behind TA-IV)
46	Old Acid Waste Line Outfall
58FF	Fire Bricks Feature (Coyote Canyon Blast Area)
58B/8Y	Debris Pile and Pit Area (Coyote Canyon Blast Area)
87	Building 9990 Firing Site
91	Lead Firing Site (Thunder Range)
96	Storm System Drain
98	Building 863 (TCA, Photochemical Releases: Silver Catch Boxes)
105	Mercury Spill (Building 6536)
135	Building 906 Drain System
137	Building 6540/6542 Septic System (TA-III)
154	Bldg. 9960 Septic System and Seepage Pits (Coyote Test Field)
187	Septic Tank Piping for POTW
190	Steam Plant Tank Farm
196	Building 6597 Cistern (TA-V)
226	Old Acid Waste Line
229	Storm Drain System Outfall (for TA-II)
1029	Building 6584 North Septic System (TA-III)
1081	Building 6650 Septic System (TA-III)
1090	Building 6721 Septic System (TA-III)

Notes:

AOC = Area of Concern

LWDS = Liquid Waste Disposal System

POTW = Publicly Owned Treatment Works

SWMU = Solid Waste Management Unit

TA = Technical Area

TCA = 1,1,1-trichloroethane

### 1.3 Report Organization

This report is organized as follows:

- Chapter 1 presents background information, purpose and scope, and report organization.
- Chapter 2 provides a summary of controls, surveillance, and maintenance requirements specified in Permit Attachment M.
- Chapter 3 presents the results of the inspections performed during the reporting period.
- Chapter 4 presents a general summary and conclusions for the CY 2020 reporting period.
- Chapter 5 lists the references cited in this report.

### 2.0 CONTROLS AND SURVEILLANCE REQUIREMENTS

Measures to be taken to provide protection of human health and the environment are defined in Permit Attachment M. The measures include surveillance of site conditions and maintenance of institutional controls. The controls are consistent with the risks presented by the site conditions and constituents of concern at each SWMU/AOC. The controls are implemented in an integrated and layered approach to enhance their effectiveness and reliability and to provide continued protection in the event that one or more controls become temporarily impaired.

The required administrative and physical controls are described in Permit Attachment M, Section M.2, "Institutional Controls," and are summarized in Section 2.1 and 2.2, respectively. Maintenance requirements are described in Section M.3, "Maintenance of Institutional Controls," and are covered in Section 2.3 of this report.

### 2.1 Administrative Controls and Surveillance Requirements

Administrative controls for the SWMUs/AOCs listed in Table 1-1 include information management, awareness, and restrictions on future land use. Information about each SWMU/AOC includes:

- Site location and characteristics;
- Site history and corrective action;
- Land use permits or agreements with KAFB;
- Documentation of current site conditions, including information from annual inspections;
- Type of controls;
- Maintenance records;
- Planning information including restrictions on future activities at the site; and
- Copies of reports previously submitted to NMED.

The information is to be maintained and plans for future DOE and SNL/NM activities at or near each SWMUs/AOC in Table K-3 of the Permit are to be evaluated during planning stages to identify aspects that are not consistent with industrial land use.

# Table 2-1 Summary of Physical Controls and Surveillance Requirements for SWMUs and AOCs Sandia National Laboratories, New Mexico

SWMU or AOC         Signs and Postings		Inspection Frequency	Additional Information	
1	4 signs on SWMU perimeter, one each in selected corners of the SWMU.		N/A	
2	5 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A	
3	Included with SWMU 1.	Annual	Located adjacent to SWMU 1.	
4	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A	
45	5 signs on SWMU perimeter, one in approximately each corner of the SWMU outside of the TA-IV fence.	Annual	Western half of the SWMU is located within the TA-IV fenced boundary.	
46	46 4 signs along the TA-IV fence line and 7 signs posted along the south and west perimeter of the SWMU.		N/A	
58FF	2 signs on perimeter	Annual	Feature within SWMU 58.	
58B/8Y	4 signs on perimeter	Annual	Feature within SWMU 58.	
87	87 4 signs, one at the access road and 3 on the perimeter of the SWMU.		N/A	
91	91 4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.		N/A	
96	96 Not feasible		SWMU/AOC consists of underground storm drains throughout TA-I. No signs, postings, or inspections are feasible due to SWMU features.	
98	8 Not feasible		SWMU/AOC consists of a subsurface area located under a building. No signs, postings, or inspections are feasible due to SWMU features.	

# Table 2-1 (Concluded)Summary of Physical Controls and Surveillance Requirements for SWMUs and AOCsSandia National Laboratories, New Mexico

SWMU or AOC Number	Signs and Postings	Inspection Frequency	Additional Information
105	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
135	1 sign.	Annual	N/A
137	4 signs on SWMU perimeter, one each at selected corners of the SWMU.	Annual	N/A
154	4 signs at 2 areas that comprise the SWMU; 2 signs near selected corners of each area.	Annual	N/A
187	Not feasible	None	SWMUs/AOCs consists of underground sewer lines throughout TA-I. No signs, postings, or inspections are feasible due to SWMU features.
190	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU.	Annual	N/A
196	1 sign near the northeast corner of the SWMU.	Annual	N/A
226	Not feasible	None	SWMUs and AOCs consists of underground drain lines throughout TA-I, -II, and -IV. No signs, postings, or inspections are feasible due to SWMUs/AOCs
229	1 sign at the top of the outfall.	Annual	N/A
1029	3 signs on SWMU perimeter.	Annual	N/A
1081	3 signs on SWMU perimeter.	Annual	N/A
1090	1 sign, approximately in the middle of the SWMU/AOC.	Annual	N/A

Notes:

AOC = Area of Concern

N/A = Not applicable

SWMU = Solid Waste Management Unit

TA = Technical Area

### 2.2 Physical Controls and Inspection Requirements

Physical controls for the SWMUs/AOCs in Table 2-1 include the following:

- Warning and information signs posted at each SWMU/AOC, where feasible.
- Fences that restrict access to some or all portions of each SWMU/AOC.
- Physical features such as subsurface locations (e.g., sewer lines); and
- Limiting land use to industrial activities.

Permit Attachment M, Table M-1, "Summary of Institutional Controls for Solid Waste Management Units and Areas of Concern Requiring Controls," lists the specific controls and surveillance requirements. They are summarized in Table 2-1 of this report.

Annual inspections are to be performed (except as noted in Table 2-1) to verify that physical controls are in place and to determine whether conditions exist at each SWMU/AOC that would impair the controls or lead to inadvertent exposure to hazardous wastes or hazardous waste constituents. In other words, annual inspections are performed to ensure physical controls are in place and performing as designed.

### 2.3 Maintenance Requirements

The physical controls (e.g., signs) for the SWMUs/AOCs are to be maintained and repaired in a timely manner as specified in Permit Attachment M, Table M-2, "Maintenance Schedule." Maintenance is to occur per the schedule in Table M-2 unless weather or other site-specific conditions result in a delay. Each repair is to be reviewed in a follow-up inspection within 180 days. The follow-up inspection may be combined with an annual inspection. Table 2-2 summarizes the maintenance requirements and schedule.

Maintenance Issue	Response Schedule
Erosion, seepage, or subsidence	Evaluate severity and if necessary develop mitigation plan within 120 days
	Complete in a timely manner
Newly-occurring or newly-discovered contamination	See Permit Part 8
	Begin to address within 30 days
Signs	Complete in a timely manner
Activities that are inconsistent with site	Begin to address within 30 days
restrictions	Complete in a timely manner

Table 2-2. SWMUs/AOCs Maintenance Schedule	
Sandia National Laboratories, New Mexico	

### Table 2-2 (Concluded) SWMUs/AOCs Maintenance Schedule Sandia National Laboratories, New Mexico

Maintenance Issue	Response Schedule		
Awareness measures to address new residential activities adjacent to	Develop measures within 30 days		
SWMU/AOC locations	Implement measures in a timely manner		
Access restrictions to address new residential activities adjacent to	Develop measures within 60 days		
SWMU/AOC locations	Implement measures in a timely manner		
Notes:	•		
AOC = Area of Concern			

SWMU = Solid Waste Management Unit

### 2.4 Changes in Requirements During Calendar Year 2020

There were no changes in Permit requirements during CY 2020.

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### 3.0 INSPECTIONS, MAINTENANCE, AND REPAIR ACTIVITIES

This chapter presents a summary of inspection, maintenance, and repair activities conducted during the CY 2020 reporting period. SWMUs/AOCs with an "Annual" designation in Table 2-1 were inspected once during 2020. Table 3-1 summarizes and discusses issues noted during inspections, together with maintenance and repair activities.

### 3.1 Maintenance of Administrative Controls

The information about each SWMU/AOC was maintained during 2020 and reviewed as needed during planning activities. Specific activities included:

- Reviewing information from annual inspections to determine whether maintenance or repairs were needed.
- Reviewing approximately 150 plans for future activities at or near the SWMUs/AOCs to verify that the planned activities would not compromise the controls in place; and
- Following each review, notifying the appropriate personnel of the controls at SWMUs/AOCs at or near the planned activities, and the actions needed to avoid compromising the controls.

### 3.2 Inspection Activities

Personnel inspected each SWMU/AOC (except where not feasible as noted in Table 2-1) during the summer months of 2020. During each inspection, personnel walked over the SWMU/AOC and recorded observations of the site perimeter and internal site areas. Large SWMUs/AOCs were inspected by following a grid pattern across the site.

Personnel monitored and recorded the following information:

- Condition of site;
- Evidence of erosion, seepage, or subsidence;
- Evidence of newly-occurring or newly-visible contamination;
- Condition and location of signs;
- Evidence of activities that were not consistent with the restrictions in place; and
- Evidence of any residential activities adjacent to the given SWMUs/AOCs that would necessitate additional awareness measures and access restrictions for the site.

### SWMUs/AOCs Requiring Controls Sandia National Laboratories, New Mexico

SWMU or AOC Number	Inspection Completion Date	Required Maintenance	Maintenance Performed	Maintenance Completion Date	Other Conditions or Events
1	10/06/2020	None. Co-Located with SWMU/AOC 3.	None	NA	None observed
2	10/06/2020	Sign Replacement. SWMU/ AOC sign was found lying on ground. The sign appeared to have been run over with heavy equipment.	A new SWMU/AOC sign was installed to replace the damaged sign.	12/17/2020	None observed
3	10/06/2020	None. Co-located with SWMU/AOC 1.	None	None	None observed.
4	10/19/2020	None	None	None	None observed
45	9/30/2020	None.	None	NA	None observed.
	9/30/2020	None	None.	NA	None observed
	11/4/2020	None	None	NA	None observed
58B/8Y	11/4/2020	None	None	NA	None observed

#### Table 3-1 (Concluded) Summary of 2020 Inspection Results and Maintenance at SWMUs and AOCs Requiring Controls Sandia National Laboratories, New Mexico

SWMU or AOC	Inspection Completion			Maintenance	
Number	Date	Required Maintenance	Maintenance Performed	Completion Date	Other Conditions or Events
87	11/11/2020	None	N/A	N/A	None observed
91	11/9/2020	None	N/A	NA	None observed
105	10/19/2020	None	N/A	N/A	None observed
135	11/4/2020	None	N/A	N/A	None observed
137	10/19/2020	None	N/A	N/A	None observed
154	11/9/2020	None	N/A	N/A	None observed
190	10/19/2020	Sign replacement. The lettering on two SWMU/AOC signs had become faint and difficult to read. Two new signs were installed.	Replaced two SWMU/AOC notification signs.	11/19/2020	None observed
196	11/11/2020	None	N/A	N/A	None observed
229	9/30/2020	None	N/A	NA	None observed
1029	10/19/2020	None	N/A	N/A	None observed
1081	10/19/2020	None	N/A	N/A	None observed
1090	10/19/2020	None	N/A	N/A	None observed

Notes:

Inspections are not required at SWMUs 96, 98, 187, and 226 because these SWMUs consist of either underground drain lines or are located under a building. Inspections are not feasible.

AOC = Area of Concern

LTS = Long-Term Stewardship

N/A = Not applicable

SWMU = Solid Waste Management Unit

Sandia National Laboratories SWMUs and AOCs Annual Long-Term Monitoring and Maintenance Report for CY 2020

Inspection records are maintained in the Operating Record at SNL/NM in accordance with the Permit requirements.

### 3.3 Inspection Results

Table 3-1 summarizes the results of the 24 annual inspections. Four subsurface sites, SWMUs/AOCs 96, 98, 187, and 226, are not subject to the requirement for annual inspections, as noted in Table 2-1. Two SWMUs/AOCs required minor maintenance activities consisting of replacing two signs with faded lettering and one sign that was run over by heavy machinery. All damaged signs were replaced with new signs.

The three SWMUs/AOCs (45, 46, and 229) located within the Technical Area IV (TA-IV) Slope Stabilization Project completed in September 2019 were inspected during CY 2020. There were no significant erosion or subsidence issues identified at these three SWMUs/AOCs.

### 3.4 Maintenance and Repair Activities

No other maintenance requirements or concerns, such as erosion or subsidence, were observed during the CY 2020 annual inspections.

### 3.5 Status of Previous Maintenance and Repair Activities

There were no outstanding maintenance issues remaining from last year's inspections that require completion.

### 3.6 Other Conditions or Events

During each site inspection, personnel observed the adjacent areas, and no activities inconsistent with site restrictions were observed during those inspections. No evidence of residential activities was noted adjacent to any of the inspected SWMUs or AOCs.

### 4.0 SUMMARY AND CONCLUSIONS

During CY 2020, maintenance and inspections of long-term controls at SWMUs/AOCs were performed as described and documented in this report.

Personnel associated with approximately 150 planned projects at SNL/NM were notified of controls associated with SWMUs and AOCs so that the controls would not be impacted by the planned activities.

Based upon the inspections performed and site conditions observed, the administrative and physical institutional controls in place at the SWMUs/AOCs are effectively providing continued protection of human health and the environment.

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### 5.0 REFERENCES

New Mexico Environment Department (NMED), January 2015. "Resource Conservation and Recovery Act Facility Operating Permit EPA ID Number NM5890110518 Issued to the U.S. Department of Energy/Sandia Corporation for the Sandia National Laboratories Hazardous and Mixed Waste Treatment and Storage Units and Post-Closure Care of the Corrective Action Management Unit," January 27, 2015.

Sandia National Laboratories, New Mexico (SNL/NM), March 2012. "Long-Term Monitoring and Maintenance Plan for the Mixed Waste Landfill," Environmental Restoration Operations, Sandia National Laboratories, Albuquerque, New Mexico.

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