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MWL

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RYAN FLYNN  
Cabinet Secretary  
BUTCH TONGATE  
Deputy Secretary

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

January 12, 2015

Geoffrey L. Beausoleil  
Manager  
U.S. Department of Energy  
NNSA / Sandia Site Office  
P.O. Box 5400, MS 0184  
Albuquerque, NM 87185-5400

Peter B. Davies  
Director  
Nuclear Energy & Fuel Cycle Programs  
Sandia National Laboratories  
P.O. Box 6200, MS-0721  
Albuquerque, NM 87185

**SUBJECT: NOTICE OF PUBLIC COMMENT PERIOD FOR PROPOSED  
DETERMINATION OF CORRECTIVE ACTION COMPLETE WITH  
CONTROLS FOR SANDIA NATIONAL LABORATORIES MIXED  
WASTE LANDFILL  
SANDIA NATIONAL LABORATORIES, EPA ID# NM5890110518  
HWB-SNL-14-014**

Dear Mr. Beausoleil and Mr. Davies:

Enclosed is a **Public Notice** regarding NMED's intent to approve the U. S. Department of Energy (DOE)/Sandia Corporation's (Permittees') October 17, 2014, request for Corrective Action Complete (CAC) with controls status for the Sandia National Laboratories (SNL) Mixed Waste Landfill (MWL).

The enclosed Public Notice provides locations where the Administrative Record for this action can be reviewed, and provides procedures for submitting comments and requesting a public hearing. Comments and requests for a public hearing must be received no later than **5:00 p.m. MST on March 13, 2015.**

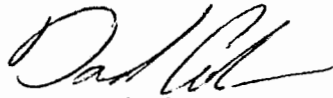
Mr. Beausoleil and Mr. Davies

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If you have any questions regarding this matter, please contact me at (505) 476-6055 or Mr. William Moats of my staff at (505) 222-9551.

Sincerely,



Dave Cobrain

Program Manager

Hazardous Waste Bureau

cc: J. Kieling, NMED HWB  
W. Moats, NMED HWB  
T. Skibitski, NMED RPD and DOE OB  
L. King, EPA Region 6 (6PD-N)  
J. Weckerle, NNSA/SSO, MS 0184  
J. Cochran, SNL, MS 0719

File: SNL 2015 and Reading

**FACT SHEET/STATEMENT OF BASIS**  
**Notice of Intent to Approve**  
**Corrective Action Complete Status with Controls**  
**for the**  
**Sandia National Laboratories Mixed Waste Landfill**  
**January 12, 2015**

Under the authority of the New Mexico Hazardous Waste Act, (HWA), NMSA 1978, § 74-4-1 et seq., and the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC, the New Mexico Environment Department (NMED or Department) may approve, approve as modified, or deny hazardous waste permits, permit modifications, closure plans and amendments. Pursuant to this authority, the Department intends, pending public input, to approve corrective action complete (CAC) with controls status for the Mixed Waste Landfill (MWL), also known as Solid Waste Management Unit (SWMU) 76, located at Sandia National Laboratories (SNL or the Facility). The MWL is subject to corrective action under a Consent Order issued on April 29, 2004, and the Department Cabinet Secretary's Final Order of May 26, 2005. Its current status as SWMU 76, subject to corrective action, is tracked under the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Operating Permit (Permit, NM5890110518) issued to the U.S. Department of Energy (DOE) National Nuclear Security Administration and Sandia Corporation (a subsidiary of Lockheed Martin, Inc.). Approval of corrective action complete status for a SWMU (such as the MWL) must be accomplished by means of a Class 3 RCRA permit modification.

The DOE is the owner of the MWL and the Facility. Sandia Corporation is the operator of the Facility. Collectively, the DOE and Sandia Corporation are the Permittees (RCRA Permit No. NM5890110518). Sandia Corporation is located at 1515 Eubank Boulevard SE, Albuquerque, NM 87123. The Sandia Site Office of the DOE is located at KAFB-East at the intersection of Pennsylvania and H Streets, P.O. Box 5400, Albuquerque, NM 87185. The Permittee's primary contact for this action is Mr. John Weckerle, DOE/NNSA, P.O. Box 5400, MS 0184, Albuquerque, NM 87185.

The MWL is being proposed for CAC status in response to a Class 3 permit modification request from the Permittees submitted to the Department on October 17, 2014. The permit modification request must follow the administrative procedures at 20.4.1.900 NMAC, incorporating 40 CFR 270.42(c), 40 CFR Part 124, and 20.4.1.901 NMAC, including the procedures for public comment and opportunity to request a public hearing.

The Department is proposing that CAC status be granted for the MWL and that the Permittees be required to maintain the administrative and physical controls as specified in the MWL Long Term Monitoring and Maintenance Plan (LTMMP) approved January 8, 2014, and any revisions thereto. Examples of controls include posting signage, conducting inspections, restricting future land use, and reporting to the NMED. The LTMMP also specifies the schedules and methods SNL must follow for monitoring of potential contaminants in environmental media.

As described in more detail below, investigation of the MWL under RCRA began in 1989, and the RCRA corrective action process resulted in the selection on May 25, 2005 of the final remedy for the MWL, through a Final Order issued by the NMED Department Secretary. The final remedy selected was construction of an engineered cover and requirements for long-term monitoring. To complete corrective action, the Permittees must demonstrate that the landfill cover and monitoring systems have been adequately constructed and implemented as required under the Corrective Measures Implementation (CMI) Work Plan, approved on December 22, 2008, and the LTTMP.

The comment period for this proposed action begins on **January 12, 2015** and ends on **March 13, 2015**. Anyone wishing to have their comments or request for a public hearing considered by NMED must submit such comments or requests during the comment period by following the procedures specified in this Statement of Basis/Fact Sheet under the heading *Public Participation*.

#### **A. FACILITY DESCRIPTION**

SNL is located within the boundaries of Kirtland Air Force Base, south of and adjacent to Albuquerque in Bernalillo County, New Mexico. SNL is a multi-purpose engineering and science laboratory which designs components for the nation's nuclear weapons, designs and tests conventional military weapons, performs a wide variety of energy research and development projects, and works on assignments that respond to national security threats. As a result of its testing and research activities, SNL generates solid, hazardous, radioactive, and mixed wastes.

"Mixed Waste" is waste that contains both hazardous waste subject to regulation under the HWA and RCRA, and radioactive material subject to regulation under the Atomic Energy Act of 1954, as amended. NMED regulates the hazardous component of mixed waste under RCRA. However, NMED generally does not have the authority to regulate radioactive waste or the radioactive component of mixed waste, including the radioactive waste in the MWL.

From 1945 to 1988, solid, hazardous, mixed, and radioactive wastes were disposed of or released at numerous locations at SNL which are classified as SWMUs or Areas of Concern (AOCs). In addition to the MWL, other SWMUs and AOCs at SNL include, but are not limited to, drainfields, seepage pits, outfalls, waste piles, and explosives test areas. Determination of CAC status is made independently for each SWMU, and this proposed action addresses only the MWL. This proposed corrective action complete determination is pursuant solely to NMED's authority under the HWA and RCRA.

#### **B. DESCRIPTION OF MIXED WASTE LANDFILL**

The MWL was opened as the "TA-3 low-level radioactive waste dump" in March 1959. Low-level radioactive waste and mixed waste from SNL research facilities and off-site generators were disposed of in the landfill from March 1959 to December 1988. Approximately 100,000 cubic feet of radioactive waste containing 6,300 curies (Ci) of activity (at the time of disposal)

were disposed of in unlined trenches and pits. The location of the Mixed Waste Landfill is shown on Figure 1.

There are two distinct disposal areas at the MWL: the classified area (0.6 acres) and the unclassified area (2.0 acres). Wastes in the classified area were disposed of in a series of vertical, cylindrical pits. Records indicate that early pits were 3 to 5 feet in diameter and 15 feet deep; later pits were 10 feet in diameter and 25 feet deep. Once pits were filled with waste, they were backfilled with soil and some were capped with concrete. The classified area contains wastes that likely present greater security, worker safety, and environmental concerns than those in the unclassified area. Wastes in the classified area include military hardware, radioactive constituents (e.g., cobalt-60, cesium-137, tritium, radium-226), activation products (e.g., cobalt-60), multiple fission products (e.g., cesium-137, strontium-90), high specific-activity wastes (e.g., tritium, cobalt-60), plutonium, thorium, and depleted uranium.

Wastes in the unclassified area were disposed of in a set of parallel, north-south trenches. Records indicate that trenches were 15 to 25 feet wide, 150 to 180 feet long, and 15 to 20 feet deep. Trenches were backfilled with soil and, once filled with waste, were capped with soil that had been excavated and locally stockpiled.

All pits and trenches contain operational and miscellaneous decontamination waste such as gloves, paper, mop heads, brushes, rags, tape, wire, metal and polyvinyl chloride piping, cables, towels, swipes, disposable lab coats, shoe covers, coveralls, high-efficiency particulate air filters, prefilters, tygon tubing, polyethylene bottles, beakers, balances, pH meters, screws, bolts, saw blades, tissue paper, petri dishes, scouring pads, metal scrap and shavings, foam, plastic, glass, rubber scrap, electrical connectors, ground cloth, wooden shipping crates and pallets, wooden and lucite dosimetry holders, and expended or obsolete experimental equipment. Containment and disposal of routine waste commonly occurred using tied, double polyethylene bags, sealed A/N cans (military ordnance metal containers of various sizes), fiberboard drums, wooden crates, cardboard boxes, and 55-gallon steel and polyethylene drums. Larger items, such as glove boxes, spent fuel shipping casks, and contaminated soils, were disposed of in bulk without containment. A more detailed MWL waste inventory, by pit and trench, is provided in the Permittees' Responses to NMED Technical Comments on the Report of the Mixed Waste Landfill Phase 2 RCRA Facility Investigation, June 15, 1998.

### **C. REGULATORY BACKGROUND FOR THIS PROPOSED ACTION**

NMED first issued a permit for storage of hazardous waste at SNL on August 6, 1992. In 1993, the U.S. Environmental Protection Agency (EPA), acting pursuant to the 1984 Hazardous and Solid Waste Amendments (HSWA), issued an amendment to that permit known as "Module IV." Module IV, effective August 26, 1993, required investigation and corrective action pursuant to 40 CFR § 264.101 at approximately 200 SWMUs. On January 2, 1996, the Department received authorization from the EPA to implement corrective action under RCRA and became the administrative authority for Module IV.

On April 29, 2004, the Permittees and the Department entered into a Compliance Order on Consent (Consent Order), which governs all currently active corrective action at the Facility. The MWL is subject to the corrective action requirements of the Consent Order, and is also

subject to the Cabinet Secretary's Order of May 26, 2005. The latter Order primarily addresses, but is not limited to, remedy planning and implementation.

On September 25, 2014, the Permittees requested a Certificate of Completion for corrective action complete with controls for the MWL under Section VII.D.6 of the Consent Order. The NMED issued a Certificate of Completion for the MWL that verifies that the Permittees have completed corrective action required by the Consent Order on October 8, 2014. The Certificate of Completion does not grant CAC status for the MWL. CAC status can only be granted after completion of a Class 3 permit modification that includes the opportunity for public participation as specified in 20.4.1.900 incorporating 40 CFR 270.42(c) and 20.4.1.901 NMAC.

On February 6, 2002, the Permittees applied to the NMED to renew their 1992 RCRA Permit. The Department issued for public comment a proposed draft Permit in August 2007. After extensions, the comment period for this draft ran until January, 2008. Based on discussions with the Permittees and other commenters, the Department issued a revised draft Permit on September 17, 2012, which was subject to public comment until February 14, 2013. Because not all objections to the Permit by members of the public and the Permittees could be resolved, a public hearing on the Permit was held on May 5 through May 8, 2014, in Albuquerque. The renewal Permit was issued on December 19, 2014.

The Permittees requested CAC status for the MWL via a Class 3 permit modification request on October 17, 2014. The Permittees conducted their public comment period from October 20, 2014 to January 5, 2015. The Permittees also held a public meeting on the CAC proposal at the Manzano Mesa Multigenerational Community Center in Albuquerque on November 18, 2014.

The MWL is listed as requiring corrective action on the RCRA Permit. If NMED approves CAC with controls status for the MWL, the listing for the MWL will be changed to corrective action is complete with controls, and Attachment M of the Permit will be modified to indicate that the controls to be implemented for the MWL are found in the LTMMP. If CAC status is not approved for the MWL, the MWL status will remain as requiring corrective action, and the additional corrective action needed will be required by the Department.

#### **D. INVESTIGATION OF THE MWL**

Investigation of potential contaminant releases at the MWL was conducted primarily in two major phases referred to as the Phase 1 and Phase 2 RCRA Facility Investigations (RFIs).

##### *Phase 1 RCRA Facility Investigation*

The Phase 1 RFI was conducted in 1989 and 1990. The objective was to determine the nature and extent of contamination, the source of contamination, the release and transport mechanisms, and the pathways of contaminant migration. Air, surface soil, and subsurface soil samples were collected and analyzed. Results of the Phase 1 RFI indicated that tritium, a radioactive substance, is the primary contaminant of concern and that it had migrated from the MWL into surrounding soils. Because the Phase 1 RFI did not fully characterize the landfill for potential releases, a second investigation phase was conducted.

### *Phase 2 RCRA Facility Investigation*

The Phase 2 RFI was conducted from 1992 to 1996 and included an examination of historical records; radiological surveys; soil sampling for background metals and radionuclides; nonintrusive geophysical surveys; active and passive soil-gas surveys; surface soil sampling for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and tritium; borehole sampling of subsurface soil for VOCs, SVOCs, metals, and radionuclides; and vadose zone tests to evaluate hydraulic properties. Of the potential contaminants investigated, only low levels of tritium, VOCs, and cadmium were found to have migrated from the landfill. VOCs and tritium are highly mobile in the environment and are discussed further below. Because little moisture can now percolate through the landfill, cadmium is not expected to pose a significant threat groundwater or other environmental media.

Tritium occurs in surface and near-surface soil in and around the classified area of the landfill at activities ranging up to 1,100 picocuries/gram (pCi/g) in surface soil. The highest tritium activities in subsurface soil, ranging up to 206 pCi/g, are found within 30 feet of the surface in soil adjacent to and directly below the classified area disposal pits. Below 30 feet, tritium activity in soil drops to a few pCi/g. Tritium also occurs as a diffuse air emission from the landfill. The observed tritium contamination in soil and air does not pose an unacceptable risk to the environment or human health.

Tetrachloroethene (PCE) is the most significant of the VOCs that have migrated from the landfill and occurs at concentrations of generally less than 2 parts per million by volume (ppmv) in the subsurface within 30 feet below the landfill. Recent data provided to the NMED from samples obtained from deep soil-vapor monitoring points (of newly installed wells under the LTMMMP) typically contain concentrations of PCE in vapor at about 0.1 to 0.3 ppmv, occurring at depths from 100 to 400 feet. Such low concentrations of PCE in soil vapor indicate that it is unlikely that PCE will be detected in groundwater at levels that would exceed the EPA Maximum Contaminant Level (MCL) of 5 µg/L.

Results of a risk assessment prepared by the Permittees suggest that releases of contaminants from the MWL do not pose unacceptable risk to human health or the environment under an industrial land use scenario. Tritium activities at the MWL will decrease steadily with time due to its relatively short half-life of 12.3 years and due to dilution as dissipation of the tritium vapor takes place. The low levels of PCE and other VOC vapors in the subsurface are also expected to dissipate and reduce in concentration as time passes.

### *Groundwater*

The depth to groundwater at the MWL is approximately 480 feet below ground surface. The groundwater monitoring well network currently consists of seven wells. Four other older wells installed at the MWL were plugged and abandoned. The four newest wells at the landfill (MWL-BW2, MWL-MW7, MWL-MW8, and MWL-MW9) were installed in 2008. Groundwater sampling has been conducted at the MWL since September 1990, generally on an annual basis. Historically, groundwater samples were analyzed for a wide variety of constituents, including

radionuclides, metals, VOCs, semi-volatile organic compounds, major ions, and perchlorate. Under the LTMMP, groundwater is now sampled semiannually at the four newest wells and analyzed for VOCs, uranium, cadmium, chromium, nickel, tritium, radon, gross alpha/beta, and selected gamma-emitting radionuclides.

There is no evidence that chemical or radiological contaminants have been detected in groundwater at the MWL at levels in excess of a water quality standard.

More detailed descriptions of the investigations completed at the MWL are provided primarily in the Phase 1 and Phase 2 RCRA Facility Investigation Reports. Groundwater sampling data for the MWL are presented chiefly in annual groundwater reports for the SNL Facility.

#### **E. REMEDY SELECTION**

On October 11, 2001, NMED directed the Permittees to conduct a Corrective Measures Study (CMS) for the MWL. A CMS Work Plan was approved with conditions by the NMED on October 10, 2002. After approval of the work plan, the CMS was conducted to identify, develop, and evaluate corrective measures alternatives and to recommend a final remedy for the MWL. The results of the CMS were documented in a CMS Report submitted to the NMED on May 21, 2003. The CMS Report was deemed complete by the NMED on January 5, 2004.

On January 23, 2004, the Permittees proposed a Class 3 permit modification, requesting that the NMED select a final remedy for the MWL. As part of a 60-day public notice and comment period initiated by the Permittees, a public meeting was held on February 26, 2004 in Albuquerque, New Mexico. Following completion of the Permittees public comment period, the NMED issued a public notice and began its public comment period starting August 11, 2004. The NMED public comment period was held from August 11, 2004 to December 2, 2004, and was extended until December 9, 2004. A public hearing on the selection of a final remedy for the MWL was held by the NMED on December 2-3 and 8-9, 2004. Based on the Administrative Record and the Hearing Officer's Report, on May 26, 2005, the NMED Secretary ordered the final remedy for the MWL, selecting a soil cover with bio-intrusion barrier as the final remedy.

#### **F. REMEDY IMPLEMENTATION**

The May 26, 2005 Final Order also required the Permittees to submit to NMED a Corrective Measures Implementation (CMI) Work Plan within 180 days after approval of the final remedy. The CMI Work Plan was submitted on November 3, 2005. The CMI Work Plan included a cover design and specifications and also included the development of a fate and transport model for various major contaminants that occur at the MWL, and trigger levels for various constituents – i.e., specific monitoring levels that would trigger additional corrective action if exceeded. A public meeting was held on May 25, 2006, to discuss the CMI Work Plan. A public comment period was held from December 9, 2005 to February 7, 2006, and from May 25, 2006 to June 8, 2006. NMED responded to public comment on November 21, 2006. On December 22, 2008, the Department approved the CMI Plan with conditions.