

OPERATING PLAN FOR AREA 23 CLASS II SOLID WASTE DISPOSAL SITE PERMIT NO. SW 13 097 04

August 2023

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Nevada Division of Environmental Protection

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ACRONYMS AND ABBREVIATIONS

ACM asbestos containing material

CFR Code of Federal Regulations

CPR Cardiopulmonary Resuscitation

dBA A-weighted decibel(s)

DOE U.S. Department of Energy

ft foot/feet

m meter(s)

mi miles

M&O Management and Operating

MSTS Mission Support and Test Services, LLC

NAC Nevada Administrative Code

NDEP/BFF Nevada Division of Environmental Protection Bureau of Federal Facilities

NNSA/NFO U.S. Department of Energy, National Nuclear Security Administration Nevada

Field Office

NNSS Nevada National Security Site

PCB polychlorinated biphenyl

pCi/g picocurie(s) per gram

ppm part(s) per million

SWDS Solid Waste Disposal Site

TCLP Toxicity Characteristic Leachate Procedure

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1.0 INTRODUCTION

This operating plan describes facilities, personnel, equipment, environmental controls, and processes that support Nevada Solid Waste Disposal regulations in Nevada Administration Code (NAC) Chapter 444, "Sanitation" (Sections 444.704–444.728 for Class II sites). NAC 444.705.4 states that an application for a Class II site must include a plan for operating the site as required by NAC 444.684. The scope of the operating plan is limited to the portions of the regulations that apply to Class II site operations. The operating plan's format follows the outline provided in the Class II Solid Waste Disposal Site Permit Application Form, Section III, 3. This plan applies to the Area 23 Class II Solid Waste Disposal Site (SWDS), referred to hereafter as Area 23 SWDS, operated under Permit No. SW 13 097 04.

2.0 SITE OVERVIEW

The Nevada National Security Site (NNSS) is located approximately 105 kilometers (65 miles) northwest of Las Vegas, Nevada. The U.S Department of Energy (DOE), National Nuclear Administration Nevada Field Office (NNSA/NFO) is the federal lands management authority for the NNSS, and Mission Support and Test Services, LLC is the Management and Operations (M&O) Contractor. Access on and off the NNSS is tightly controlled, restricted, and guarded on a 24-hour basis.

The M&O contractor is the operator of all solid waste disposal sites on the NNSS. The Area 23 (SWDS) is in the southern tip of the NNSS adjacent to NNSS base operations in Mercury, Nevada. Although there are no physical records to verify when the current disposal site opened, an interview with operating personnel indicated that site excavation began in 1985 followed by the opening of the site in 1987. The site, historically, has been utilized for disposal of rubbish, refuse, sewage sludge, medical waste, pathological waste, asbestos containing material (ACM), empty pesticide containers, oily rags, and solid waste. A Notice of Intent to operate the SWDS as a Class II site was submitted to the state of Nevada on January 26, 1994, and was acknowledged as being received in a letter to the DOE on February 8, 1994. It has been operated as a Class II SWDS since then.

The Report of Design as required per NAC 444.708 was provided to NDEP when the SWDS was originally approved. The Report of Design is not included with the August 2023 application since the original report is not available and the August 2023 application is not requesting additional cells or changes to the design of the SWDS.

3.0 LOCATION REQUIREMENTS

The location of this Area 23 SWDS was approved by Nevada Division of Environmental Protection in 1994.

4.0 PERSONNEL REQUIREMENTS (WITH LEVEL OF AUTHORITY)/TRAINING (NAC 444.684)

The operator controls access during ongoing activities, determines the acceptability of the waste, and estimates the weight of the solid waste entering the Area 23 SWDS. At least one disposal operator will be in attendance during operation.

4.1 Training

The M&O Contractor is responsible for verifying that personnel assigned to support activities at the Area 23 SWDS meet the training requirements. Personnel assigned to this site receive training as outlined in Table 1 below, as applicable to the type of activity and role being performed. Employees,

including subcontractor personnel, will not participate in field activities until they have been trained to a level required by their job function and responsibility. If work activities create additional training requirements not covered in this operating plan, the appropriate training will be identified, provided, and documented.

Table 1. Training Requirements

Course	Activity Level Work
General Employee Radiological Training	Х
Toxic Metals/Beryllium/Lead Awareness	Х
Asbestos Awareness	Х
Hazard Communication	Х
Fire Extinguishers (video)	X
Personal Protective Equipment	Х
Driver Safety (for government vehicle use)	Х
Hearing Conservation (if sound levels potentially exceed 85 dBA)	X
Bloodborne Pathogens	Х
First Aid	Х
Cardiopulmonary Resuscitation (CPR)	X

5.0 EQUIPMENT REQUIREMENTS WITH CONTINGENCIES AND DESCRIPTIONS

Communication equipment will be available at the site when the Area 23 SWDS is operational.

Waste arrives at the Area 23 SWDS in luggers, roll-off boxes, flat bed and dump bed trucks, trash trucks, trailers, or similar receptacles.

The waste is managed at the Area 23 SWDS using equipment that includes but is not limited to dozers, a front-end loader, a non-potable water truck for dust control, a scraper to support driveway maintenance, a dump truck if needed, and forklifts. All equipment is maintained by the M&O Contractor in repair shops on the NNSS.

6.0 LITTER/DUST CONTROL PROGRAM

6.1 Litter Control

Litter control is based on the type and content of waste to be disposed and daily cover with native soils. The possibility exists for the lightweight solid waste and litter to be windblown; operators will inspect lightweight waste while during the Area 23 SWDS is operational. If lightweight material is observed at the surface, native soil will be added to prevent diversion. Workers remove, on a continuing basis, windblown material collected outside the perimeter fence within the disposal boundary.

6.2 Dust Control

Water trucks will be used to spray water as needed to suppress dust on the compacted dirt roads and during operations involving the compaction material.

7.0 WASTE CHARACTERIZATION AND ACCEPTANCE CRITERIA

7.1 Summary

Waste characterization is a means of identifying the chemical and physical properties of the waste material to ensure that the solid waste accepted at Area 23 SWDS is not prohibited polychlorinated biphenyl (PCB) material; hazardous waste as described in Title 40 Code of Federal Regulations (CFR) Part 261, "Identification and Listing of Hazardous Waste," Subparts C and D; or otherwise prohibited waste. If the waste generator does not have adequate knowledge or if the Area 23 SWDS operator questions the characterization, additional investigation will be done, including sampling and analysis or further research.

7.2 Process Knowledge

Generators characterize waste by their familiarity and experience with the process by which material was generated. Process knowledge relies on a waste generator's knowledge of the chemical properties of process ingredients, including concentration levels of contaminants in the ingredients at the start of the process and how each step of the process chemically and/or physically affects the processed material by adding, removing, producing, depleting, or neutralizing the contaminants in process ingredients, by-products, and/or finished products. Safety Data Sheets often are used as a means of identifying the process ingredients, and through the generator's knowledge of the process, the waste can be identified.

Process knowledge may also be "derived" through the repeated analyses of the same waste stream.

7.3 Processing In

Loads of waste are only accepted at the Area 23 SWDS when operators are present. Each load of waste is accompanied by the following paperwork:

- Signed load verification(s) documents that contain waste characterization information, a statement on the absence prohibited materials, and the waste source by location
- Radiological clearance certification (only if waste came from an area with active or historic radiological activities)

Prior to entering the Area 23 SWDS, transporters of industrial and commercial waste provide the estimated weight. SWDS operators designate the area of disposal of the Area 23 SWDS where the transporter offloads.

7.4 Waste Minimization/Segregation

It is NNSS policy to use waste minimization techniques to reduce waste generation. This occurs by separating waste at the point of generation or collection. Recyclable materials such as cardboard, scrap metal, and salvageable items are sold at auction or sent to offsite recycling facilities.

7.5 Waste Acceptance

7.5.1 Overview

Acceptable waste comes from the government agencies and contractors with operations at the NNSS, Federal Facility Agreement and Consent Order remediation sites in Nevada, and, on a case-by case basis and subject to approval from Nevada Division of Environmental Protection/Bureau of Federal Facilities, from other NNSA/NFO operations within Nevada.

Before acceptance, the SWDS operator will ensure that all documentation is complete, accurate, and legible. If the documentation is not acceptable, the Area 23 SWDS operator will reject the waste for disposal. The disposal operator may also reject the waste if, upon a random inspection, it is determined that the waste does not conform to the waste acceptance criteria (Sections 7.5.2 through 7.5.6) or is falsely represented.

SWDS operators, prior to accepting waste, obtain a signed document attesting to:

- The absence of prohibited materials
- Waste characterization information that identifies the type of allowable waste and the process by which it was characterized (e.g., waste minimization/segregation, process knowledge, sampling and analysis)
- Source by location

This information must be prepared by the generator or a worker familiar with the waste as part of the load verification document and accepted by Area 23 SWDS operators prior to the waste being disposed. Inadequate documentation is cause to refuse entry and disposal of any load of solid waste.

7.5.2 Permissible Waste

The Area 23 SWDS accepts commercial (rubbish) and industrial solid waste and consistent with the following listed below.

- Garbage as defined in NAC 444.578
- Rubbish as defined in NAC 444.612
- Putrescible as defined in NAC 444.608
- Organic waste consisting of dead animal remains and dried sewage sludge.
- Friable and non-friable asbestos
- Asphalt
- Non-asbestiform insulation
- Metal sheets, bars, rods, tubes, and castings.
- Wood
- Rubber (not including recyclable waste tires)
- Plastic
- Cloth
- Paper
- Cement and Concrete

- Soil and rock material
- Cable and wire
- Empty containers
- Manufactured items such as: swamp coolers, furniture, rugs, carpet, electronic components, personal protective equipment, etc.
- Industrial wastes from construction and demolition activities.

7.5.3 Sewage Sludge

Sewage sludge will be dried, and then it will be sampled and analyzed. Domestic sewage will be analyzed for constituents identified in 40 CFR 503, "Standards for the Use or Disposal of Sewage Sludge," and contaminants listed in 40 CFR 261.4, using the Toxicity Characteristic Leachate Procedure. Sewage sludge exceeding the TCLP limits in 40 CFR 261.4, Table 1, will be managed as hazardous waste.

7.5.4 Friable Asbestos Waste

Friable asbestos waste is disposed in a designated area. Friable asbestos is received at the Area 23 SWDS that is packaged and shipped in accordance with OSHA and DOT requirements.

7.5.5 PCB Waste

PCB waste that meets the requirements for disposal at the site, as specified in Table 2, is acceptable for disposal.

Table 2. Acceptable PCB Waste as specified in 40 CFR 761 and NAC 444.945

Acceptable PCB Waste	Acceptable concentrations
PCB Small Capacitors (40 CFR 761.60 (b)(2)(ii))	Any
PCB Hydraulic Machines, Drained (40 CFR 761.60 (b)(3)(i)(B) and (40 CFR 761.60 (b)(3)(ii))	<1,000 ppm PCBs
PCB Hydraulic Machines, Flushed (40 CFR 761.60 (b)(3)(i)(B) and (40 CFR 761.60 (b)(3)(ii))	≥1,000 ppm PCBs
PCB-Contaminated Electrical Equipment (40 CFR 761.60 (b)(4)	≥50 ppm but <500 ppm PCBs
Other PCB Articles (40 CFR 761.60 (b)(6)(ii)(A)(2))	<500 ppm PCBs
PCB Light Ballasts with PCBs in Non-Leaking Capacitors with <50 ppm PCBs in Potting Compound (40 CFR 761.62 (b)(1))	Any
Empty PCB Containers (40 CFR 761.60 (c)(2))	<500 ppm
PCB Bulk Product Waste including Plastic, Rubber Parts, Dried Paints/Similar Coating, Building Demolition Debris, or Similar Materials Expected to Leach (40 CFR 761.62 (b)(1)(i))	Any
Other PCB Bulk Product Waste Demonstrated to Leach <10 µg/L (40 CFR 761.62 (b)(1)(ii))	Any

7.6 Prohibited Waste

The following wastes are prohibited from disposal at the Area 23 SWDS:

 Waste that does not meet the surface activity release requirements in Article 422 of DOE/NV/03624-0257, "Nevada Test Site Radiological Manual," or current revision, "Release to Uncontrolled Areas," and exceeds the mass concentrations in 10 CFR 30.70 or Table 3 of this document. When radionuclides not identified in this section are known or suspected to be present in permissible wastes, applicable limits will be established before waste is accepted for disposal. All limits established for radionuclides not addressed in this section will be done with the concurrence of the NDEP/BFF.

Radionuclide*	Mass Concentration Limits (pCi/g)
²²⁶ Ra**, ²³² Th, ²³⁷ Np, ²³⁸ Pu, ²³⁹ Pu, ²⁴⁰ Pu, ²⁴¹ Am, ²⁴² Cm, ²⁴⁴ Cm	10
²² Na, ⁶³ Ni, ⁹⁰ Sr, ⁹⁴ Nb, ⁹⁹ Tc, ¹³⁷ CS, ¹⁵² Eu, ¹⁵⁴ Eu, ¹⁵¹ SM, ²³⁴ U, ²³⁵ U, ²³⁸ U, ²⁴¹ Pu**, ¹²⁵ Sb, ¹⁴⁷ Pm, ⁶⁰ Co	100

Table 3. Radiological Volumetric Limits for NNSS Area 23 SWDS Disposal

Based upon process knowledge, permissible waste generated outside controlled areas, as defined in DOE/NV/03624--0257, current revision, is assumed to have no added radioactivity and does not require surface contamination surveys or radiological analysis. Permissible waste generated inside controlled areas is segregated using one or more of the following: process knowledge, surface surveys, or radiological analysis.

When a mixture of radionuclides is known or potentially present, a sum of fractions must be performed using the following equation.

$$\sum_{i=1}^{n} \frac{C_i}{VL_i} \le 1$$

Where C_i is the measured activity of radionuclide i; VL_i is the mass concentration limit for radionuclide i; and n is the number of radionuclides in the mixture.

- Resource Conservation and Recovery Act Hazardous Waste (as described in NAC 444.8565)
- Medical Waste (as described in NAC 444.589)
- Pathological Waste (as described in NAC 444.600)
- PCB Waste not listed in Section 7.5.5
- "Free Liquid" Waste (as described in NAC 444.692)

^{*} Progeny in equilibrium with their parent radionuclide have been incorporated with these limits (e.g., ¹³⁷Cs, ⁹⁰Sr) and do not need a sum of fractions determination.

^{** &}lt;sup>226</sup>Ra is a daughter product of ²³⁸U. ²⁴¹Pu is an activation product, not a fission product.

8.0 COVER REQUIREMENTS

Waste is spread evenly and compacted to form a lift that will not vary by more than 0.6 meters (m) (2.0 feet [ft]) along the face. The height of the lift can vary but will not exceed 2.0 m (6.6 ft). Each lift is covered with at least 15 centimeters (6 inches) of compacted earthen material. Compaction is accomplished by making at least two passes with a dozer or an equivalent piece of equipment.

Waste is covered and compacted daily per NAC 444.716. Prior to compaction, waste is spread evenly. A dozer or similar equipment makes at least two passes over the waste and compresses it to at least 0.6 m (2 ft).

Putrescible waste, dead animal carcasses, and other wastes that attract vectors is covered immediately.

Friable asbestos waste is covered within 24 hours.

9.0 INSPECTIONS AND OPERATING RECORDS

9.1 Area 23 SWDS Inspections

The Area 23 SWDS will be inspected daily when waste is accepted. The inspection will consist of the following items:

- Erosion of the berm or walls
- Settling of the covered material
- Condition of fencing
- Condition of roadway
- Accumulation of litter
- Accumulation of water

Each inspection will be noted. Corrective measures will be taken as soon as possible to correct the deficiency. All corrective measures and their completion dates will be recorded.

9.2 Waste Inspections

Area 23 SWDS personnel will inspect, at minimum, one randomly selected load of waste on a monthly basis. Once the waste has been dumped onto the ground, the inspector will closely examine the load of waste to verify that only acceptable items are present. Each inspection will be documented and placed in the SWDS operating record.

If prohibited waste is identified by site personnel during normal operations or inspections, the item(s) will be removed from the working face and segregated. If necessary, the SWDS will be temporarily closed pending remediation. An investigation of the circumstances that resulted in the receipt of unacceptable items, and proper disposition of those materials, will follow. NDEP/BFF will be notified if prohibited waste is disposed.

9.3 Operating Records

Records and logs will be maintained by designated Area 23 SWDS personnel. The following documentation must be available for each load of permissible waste:

- A load verification document
- Analytical results or written documentation of process knowledge
- Estimated weight
- Radioactive Material Clearance (when needed)

The amount and source of permissible waste delivered to the SWDS will be documented in the operating record. Additional documentation required as operating records are Access Records and Inspection Checklists.

9.4 Semi-Annual Report

As specified in NAC 444.728, a solid waste report is submitted to NDEP/BFF twice a year.

10.0 CONTINGENCY/EMERGENCY PLAN

10.1 Medical Emergency

Employees are trained in first aid and CPR (see Table 1). Emergency medical services (EMS) are located in Area 23 (Mercury), approximately 1.1 mi away. This EMS facility operates Monday through Thursday, 7:00 a.m. to 5:30 p.m. SWDS personnel may contact medical services by calling 911 or by using a "Mayday" signal on the NNSS radio communication system. Additional emergency services are available 24 hours a day through the Fire Department, approximately 0.9 miles away. All operators always have an NNSS radio and cell phones with them.

10.2 Fire

Open burning of solid waste is prohibited by NAC 444.6675. However, fires could be initiated through malfunction of electrical devices or Area 23 SWDS equipment. Fire extinguisher is brought in when the Area 23 SWDS is operational.

SWDS personnel will use hand-held fire extinguishers to control small fires. Where fires cannot be extinguished with small, hand-held extinguishers, the NNSS Fire Department will be notified by calling 911 on the telephone or using a "Mayday" signal on the NNSS radio communication system. Under no circumstances will Area 23 SWDS operators attempt to extinguish a large fire without instructions from the NNSS Fire Department.

The fire station serving the Area 23 SWDS is located in Area 23 (approximately 0.9 mi. away) and operates 24 hours per day, 7 days a week.

10.3 Inclement Weather

The Area 23 SWDS is not operated in heavy rain or other severe storms. The SWDS is protected from run-off water using land contouring and soil berms. However, rain falling directly on the site may result in localized muddy conditions, which requires the SWDS be closed for short periods of time until additional native soil is added to muddy areas to provide a workable surface.

11.0 GROUNDWATER/METHANE MONITORING

11.1 Groundwater Monitoring

The Area 23 SWDS receives less than 20 tons of waste per day on the average and is exempt from groundwater monitoring as specified in 40 CFR 258 1(f). Lithological data from drilling the well indicates that the driving force near the aquifer is upward, and the static water level at the nearest well is 355 m (1165 ft). A No-Migration Demonstration screening study was conducted in accordance with EPA guidance document, EPA530-R-99-008 "Preparing No-Migration Demonstrations (NMD) for Municipal Solid Waste Disposal Facilities: A Screening Tool." Based on the data above, NDEP granted the groundwater monitoring exemption in June 2004.

11.2 Methane Monitoring

The majority of wastes accepted at the Area 23 SWDS are not expected to generate methane gas, and only a minimal quantity of putrescible waste with that potential is accepted. Based on the overall physical and chemical composition of acceptable waste and low annual rainfall at the SWDS, the generation and accumulation methane gas is considered minimal to non-existent. Therefore, methane gas/explosive gas monitoring is not necessary.

12.0 LEACHATE MANAGEMENT

There is no leachate collection device at Area 23 SWDS.

13.0 SURFACE WATER REQUIREMENTS (DRAINAGE FROM ACTIVE AREAS)

The Area 23 SWDS is not operated in heavy rain or other severe storms. It is protected from run-off water using land contouring and soil berms. However, rain falling directly on the SWDS may result in localized muddy conditions, which require the SWDS to be closed for a short period of time until additional native soil is added to muddy areas to provide a workable surface.

14.0 CLOSURE/POST-CLOSURE PROCEDURES/REQUIREMENT WITH FINANCIAL ASSURANCE

14.1 Closure

NDEP/BFF will be notified in writing of intent to close the disposal site at least 15 days before beginning closure activities. Closure activities will commence within 30 days of written acceptance of the plan by NDEP/BFF and will be completed within 80 days after beginning the closure. The closure plan will address cover specifications, an estimate of the total volume of waste placed in the Area 23 SWDS during its lifetime, decommissioning of applicable equipment/structures, and the installation of appropriate monitoring devices. The plan will meet all applicable regulations and will follow all relevant and appropriate regulations to the extent possible.

It is anticipated that the disposal site will be used until permissible waste reaches an elevation of the west and east side berms approximately 3650 ft. The final design will incorporate a cap configuration which will have a slope of not less than three percent away from the center and be graded along the sides to drain surface water into the flood channels on the east and west sides of the site.

The landfill will be closed in accordance with requirements of NAC 444.6891 – 444.6896.

An alternative design may be recommended at the time closure which meets or exceeds infiltration requirements, controls erosion, maintains cover stability, and protects the groundwater of Nevada.

14.2 Post-Closure

The post closure program will:

- Maintain the integrity and effectiveness of the final cover
- Correct the effects of settlement, subsidence, erosion, or other circumstances, which may affect
 the integrity of the final cover

The post closure program will be conducted for a period of 30 years. However, the land manager/operator maintain the right to request a waiver from the items listed above or request a waiver in the time period, if it can be demonstrated that a less extensive program is sufficient to protect health and safety and the environment.

14.3 Financial Assurance

Not applicable to Federal Government facilities (NAC 444.682(2a)).

15.0 MISCELLANEOUS REQUIREMENTS

15.1 Scavenging

Scavenging and salvaging are not permitted in the Area 23 SWDS.

15.2 Inspections

Refer to Section 9.0.

15.3 Weighing and Measuring Waste

Refer to Sections 4.0, 7.3, and 9.3.

15.4 Semi - annual Report

Refer to Section 9.4.

15.5 Approval by Solid Waste Management Authority

Refer to Section 2.0.

15.6 Financial Assurance

Refer to Section 14.3.

15.7 Closure and Post-Closure Care

Refer to Sections 14.1 and 14.2.

15.8 Site Location

Refer to Section 3.0.

15.9 Waste Characterization

Refer to Section 7.0.

15.10 Groundwater Monitoring

Refer to Section 11.1.

15.11 Changes to Documents

Changes requiring approval will be submitted to NDEP/BFF.

15.12 Alternative Schedule for Recordkeeping and Notification

No alternative schedule is requested for recordkeeping or notification requirements.