DOE/NV/25946--1085

Application for a Permit to Operate a Class III Solid Waste Disposal Site at the Nevada National Security Site Area 5 Asbestiform Low-Level Solid Waste Disposal Site

October 2010
Rev. 1

Prepared for the
U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office
by
National Security Technologies, LLC

DISCLAIMER

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U.S. Government or any agency thereof.

1 Facility Summary

The Nevada National Security Site (NNSS) is located approximately 105 km (65 mi) northwest of Las Vegas, Nevada. The U.S. Department of Energy National Nuclear Security Administration Nevada Site Office (NNSA/NSO) is the federal lands management authority for the NNSS and National Security Technologies, LLC (NSTec) is the Management and Operations contractor. Access on and off the NNSS is tightly controlled, restricted, and guarded on a 24-hour basis. The NNSS is posted with signs along its entire perimeter.

NSTec is the operator of all solid waste disposal sites on the NNSS. The Area 5 Radioactive Waste Management Site (RWMS) is the location of the permitted facility for the Solid Waste Disposal Site (SWDS). The Area 5 RWMS is located near the eastern edge of the NNSS (Figure 1), approximately 26 km (16 mi) north of Mercury, Nevada. The Area 5 RWMS is used for the disposal of low-level waste (LLW) and mixed low-level waste. Many areas surrounding the RWMS have been used in conducting nuclear tests.

1.1 Facility Information

The site will be used for the disposal of regulated Asbestiform Low-Level Waste (ALLW), small quantities of low-level radioactive hydrocarbon-burdened (LLHB) media and debris, LLW, LLW that contains Polychlorinated Biphenyl (PCB) Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water, and small quantities of LLHB demolition and construction waste (hereafter called permissible waste). Waste containing free liquids, or waste that is regulated as hazardous waste under the Resource Conservation and Recovery Act (RCRA) or state-of-generation hazardous waste regulations, will not be accepted for disposal at the site. Waste regulated under the Toxic Substances Control Act (TSCA) that will be accepted at the disposal site is regulated asbestos-containing materials (RACM) and PCB Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water. The term asbestiform is used throughout this document to describe RACM.

The disposal site will be used as a depository of permissible waste generated both on site and off site. All generators designated by NNSA/NSO will be eligible to dispose regulated ALLW at the Asbestiform Low-Level Waste Disposal Site in accordance with the DOE/NV--325, Nevada National Security Site Waste Acceptance Criteria (NNSSWAC, current revision). Approval will be given by NNSA/NSO to generators that have successfully demonstrated through process knowledge (PK) and/or sampling and analysis that the waste is low-level, contains asbestiform material, or contains PCB Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water, or small quantities of LLHB demolition and construction waste and does not contain prohibited waste materials. Each waste stream will be approved through the Radioactive Waste Acceptance Program (RWAP), which ensures that the waste meets acceptance requirements outlined in the NNSSWAC.

1.2 Owner/Operator

Owner:	U.S. Department of Energy National Nuclear Security Administration Nevada Site Office P.O. Box 98518 Las Vegas, NV 89193-8518
Authorized Agent:	Ken M. Small Program Manager, Resource Conservation and Recovery Act
Operator:	National Security Technologies, LLC P. O. Box 98521 Las Vegas, Nevada 89193-8521
Authorized Agent:	Stephen M. Younger President and General Manager

1.3 Facility Location

Name:	Area 5 Asbestiform Low-Level Solid Waste Disposal Site
County:	Nye County
Location:	Nevada National Security Site (NNSS), Area 5 RWMS
NSO Coordinates:	N 766,528 to N 767,200 by E 708,734 to E 708,893 (Based on Nevada State Plane Grid - Central Zone, North American Datum, 1983)

1.4 Facility Design

The proposed Class III SWDS is a new landfill and will be located at the Area 5 RWMS. The Area 5 RWMS is comprised of multiple disposal cells in the "92-acre area" and "expansion area" within the RWMC. Until 2001, all disposal activities at the RWMS were within the "92-acre area." Disposal operations have since been ongoing north of the "92-acre area" in the "expansion area." The proposed SWDS, Pit 20 (Figure 2) will be located in the "expansion area." The minimum dimensions for the proposed SWDS will be 91.4 x 205.7 x 6.1 m (300 x 675 x 20 ft) with a design capacity of 5,828 cubic meters (m^3) (250,800 cubic yards). Design drawings that were issued for construction are provided in Figure 3 and Figure 4.

2 General Permit Conditions

2.1 Definitions

Unless the context otherwise requires, the definitions used in the Permit will have the meanings ascribed to them in NAC 444.5701 to 444.631.

2.2 Permit Actions (NAC 444.643)

The Permit will be based upon the information submitted in this Permit application, and as approved by the NDEP. The Permit may be modified by the Division, for cause, in accordance with NAC 444.643 or if there is a change in the statutes or regulations upon which the issuance of the Permit is based or if a modification is otherwise necessary to protect public health, safety and the environment. The Permit may be revoked or suspended if written notice is given by the solid waste management authority and the disposal site does not remain in compliance with the applicable statutes and regulations. The filing of a request by the Permittee for a Permit modification or termination, or a notification of planned changes or anticipated noncompliance, or termination of activities authorized in the Permit does not stay any Permit condition. The Permittee shall inform the Division of any deviation from or change in the operations as presented in the application, which may affect the Permittee's ability to comply with applicable regulations or conditions of the Permit. The Permit may be transferred to a subsequent owner or operator only if the solid waste management authority approves the transfer based on documentation of financial responsibility provided by the new owner or operator.

2.3 Availability of Permit Documents

The Permittee will keep, at the NNSS a complete copy of the Permit and incorporated documents, as identified herein.

2.4 Compliance with Statutes and Regulations

The Permittee shall comply with NRS 444.440 through 444.620, and NAC 444.570 through 444.7499, as applicable.

2.5 Duty to Provide Information

The Permittee shall furnish to the Division, within a reasonable time, any relevant information which the Division may request to determine compliance with this Permit or to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit. The Permittee shall also furnish to the Division, upon request, copies of records required to be kept by this Permit.

2.6 Incident Reporting

NNSA/NSO will report incidents to the NDEP as provided in the Maintenance and Operation Plan (Exhibit 1) and the Health and Safety Plan (Exhibit 2). In addition, NNSA/NSO will report any noncompliance, imminent or existing hazard from a release of waste or hazardous constituents, or from a fire or explosion at the facility, which may endanger human health or the environment. Such information shall be reported by telephone to 800-331-6337 within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. A written report shall be submitted within 15 days of the incident and shall include the following:

- Name and title of person making report;
- Date, time, and type of incident;
- Name and quantity of material(s) involved;
- A complete description of the occurrence and its cause;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable;
- Estimated quantity and disposition of recovered material that resulted from the incident; and
- Actions taken by the Permittee in response to the incident.

2.7 Reporting Anticipated Non-Compliance

The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with Permit requirements.

2.8 Inspection and Entry

The Permittee shall allow the NDEP, or an authorized representative, upon the presentation of credentials or other documents as may be required by law to:

- Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;
- Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
- Sample or monitor at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized, any substances or parameters at any location subject to the Permit.

2.9 Construction Quality Assurance and Quality Control (NAC 444.645)

There is no liner system at the site. This Class III SWDS is allowed an exception from the strict liner requirements. The disposal site is located in an area that has a very high evapotranspiration

rate, low annual precipitation, and a very deep water table. In addition, free liquids are prohibited. These disposal site characteristics, disposal requirements, and form criteria are not conducive to the generation of leachate, and no significant amounts of leachate are anticipated.

3 Permit Documents

The following documents, as submitted by the Permittee and approved by the NDEP also describe and/or restrict the operation of this disposal site:

- Operation and Maintenance Plan (Exhibit 1)
- Health and Safety Plan (Exhibit 2)
- Waste Acceptance Criteria (Exhibit 3)
- Closure and Post-Closure Plan (Exhibit 4)

4 Waste Acceptance Criteria

4.1 Solid Wastes Proposed for Disposal

1. Regulated ALLW that is generated by asbestos abatement programs administered by state or federal agencies pursuant to the TSCA.
2. Regulated asbestiform low-level waste.
3. NNSA/NSO-generated LLHB media and debris and LLHB demolition and construction waste. This material may or may not be contaminated with regulated asbestiform material.
4. LLW that meets the waste acceptance criteria.
5. LLW that meets the waste acceptance criteria in Section 6.2 and contains PCB Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water.
6. Other waste on a case-by-case basis, with concurrence from NDEP/BFF.

4.2 Solid Wastes That Will Be Prohibited From Disposal

The Permittee is prohibited from placing in the landfill the following wastes:

- High-level radioactive waste
- Transuranic (TRU) waste (alpha-emitting TRU nuclides with half-lives greater than 20 years and a concentration greater than 100 nanoCuries/gram [nCi/g])
- Radioactive waste from DOE or commercial operations that produce nuclear power for public consumption
- Sewage pumpings and sludge
- Septic tank pumpings and sludge
- Hazardous waste
- Medical waste
- Waste containing free liquids

- Tires
- Other materials prohibited by law

5 Recordkeeping

5.1 The Permittee Shall Maintain Records at the Site as Described in the Operation and Maintenance Plan

5.2 The Permittee Shall Maintain the Following Records at the Site in Accordance with NAC 444.747

1. Any documentation of cost estimated and financial assurances required pursuant to NAC 444.685
2. Plans for closure and postclosure care and any monitoring, testing, or analytical data required pursuant to NAC 444.6891 to 444.6896, inclusive
3. How the site conforms to the restrictions on location set forth in NAC 444.735
4. Any plan to characterize solid waste required pursuant to NAC 444.737
5. Any demonstration, certification, finding, monitoring, testing or analytical data from the program for monitoring ground water required by NAC 444.7481 to 444.7499, inclusive
6. The owner or operator shall promptly notify the Division after the owner or operator has placed the information in the operating record of the facility pursuant to this subsection. The information must be furnished to the Division or made available for inspection by the Division at any reasonable time.

6 Reporting

Class III Facility

1. Submit annually to the Division a report of the solid waste received at the site. The report must be submitted within 30 days following the end of each calendar year.
2. The Permittee shall at least once every 5 years thereafter until the site is closed
   - Indicate the remaining volume and disposal capacity of the site;
   - Indicate the volume used and waste disposed of since the original report of design; and
   - Calculate the remaining life of the site, in years.
3. Submit annually to the Division a Neutron Monitoring Report. The report must be submitted by the last Friday of the second quarter.
4. All reports, notifications, or other submissions which are required by this Permit must be submitted by the specified due date to:

Bureau of Federal Facilities
Nevada Division of Environmental Protection
2030 East Flamingo Road, Suite 230

Las Vegas, NV 89119

6.1 Financial Assurance Reporting

Nevada Administrative Code (NAC) 444.685 exempts entities of the federal government from the financial assurance requirements outlined in the state of Nevada solid waste disposal regulations.

6.2 Notification of New Cell Construction

In accordance with NRS 444.556, the Permittee shall notify the NDEP.

7 Groundwater Monitoring

The state of Nevada may suspend groundwater monitoring requirements if it can be demonstrated that "there is no potential for migration of pollutants and contaminants from the site to the waters of the state during the active life of the site, including the period of closure and post closure" [NAC 444.683]. This demonstration must be based on "processes affecting the fate and transport of contaminants and predictions of the fate and transportation of contaminants and a consideration, of the impacts on public health and the environment" [NAC 444.7481]. The major factors affecting leachate generation and migration into the groundwater are climate, geology and hydrogeology, water availability, and the condition of the waste before and after placement into the disposal site.

7.1 Climate

The NNSS lies within a region of the southwestern United States known for its arid intermountain deserts. Humid Pacific air masses rising over coastal mountain ranges to the west cause most of the moisture to fall on the intercoastal mountain ranges before reaching the interior of the NNSS. The NNSS lies in a region that is transitional between the south-central Great Basin and the Mojave Desert. The climate is characterized by a large number of cloudless days, low precipitation, and high daily temperatures during the summer (Hunt et al., 1966).

The climate of Frenchman Flat is arid. The majority of rain falls during two seasons. The larger amount of rain occurs in the winter with a smaller amount of rain occurring during the summer months. The average annual precipitation, based on a 37-year record at a station located 6.4 km (4 mi) southwest of the WEF, is 126 mm per year (5.0 in per year). Average annual evapotranspiration at the Area 5 RWMS is 1,620 mm (64 in). This is about 13 times the annual average precipitation (DOE/NV 2000).

7.2 Geology and Hydrogeology

The Area 5 RWMS is located in northern Frenchman Flat at the juncture of three coalescing alluvial piedmonts (Snyder et al., 1995). Frenchman Flat is a hydrologically closed basin located along the southeastern boundary of the NNSS. The basin is bounded by the Halfpint Range to the north, the Ranger Mountains and Buried Hills to the east-southeast, Mount Salyer to the west, and Mercury Ridge and Red Mountain to the south. The mountains on the south and east consist primarily of limestone and clastic rocks of Paleozoic age, and on the north and west by volcanic rocks of Miocene age (Frizzell and Shulters, 1990). In northern Frenchman Flat, the Miocene volcanic and underlying pre-Tertiary rocks that demarcate the basin are broken by numerous normal faults, resulting in fault blocks that are gently to moderately tilted. Although regional Miocene tectonism began earlier, at least the northern portion of Frenchman Flat formed at some time after deposition of middle Miocene volcanic rocks with an estimated age of about 11.5 Ma (Sawyer et al., 1990), but before intrusion of basaltic dikes along some of the faults about 8.5 Ma (Crowe et al., 1983). Extension has continued into the Holocene, as evidenced by movement along Cane Spring fault along the western margin of the basin, and Rock Valley fault along the southern margin of the basin (Carr, 1984).

Surface and subsurface geologic investigations were performed in northern Frenchman Flat as part of the site characterization activities for the Area 5 RWMS. A detailed description of the surficial geology and soils of northern Frenchman Flat is presented in Raytheon Services Nevada, 1995.

The groundwater systems beneath the NNSS have been summarized in a number of studies including Laczniak et al. (1996), Winograd and Thordarson (1975), and Blankennagel and Weir (1973). One recurring observation within these studies is that accurate characterization of the NNSS groundwater flow systems is difficult because of limited data (few wells penetrate more than 33 m [100 ft] into saturated ground at Yucca Flat), effects caused by nuclear testing (fracturing and groundwater mounding), and the general complexity of the hydrogeology of the region. Laczniak et al. (1996) provide the most complete and recent summary of the groundwater systems of the NNSS; therefore, the following overview of regional and local groundwater systems is taken from Laczniak et al. (1996). Characterization of vadose zone properties and processes was drawn from investigations of Frenchman Flat and Yucca Flat (Levitt et al., 1996; BN, 1998).

Regional Groundwater System

The NNSS is located within the Death Valley groundwater flow system, one of the major hydrologic subdivisions of the southern Great Basin. The Death Valley groundwater flow system covers an area of about 40,920 square kilometers (km^2) (15,800 square miles [mi^2]) and consists primarily of volcanic rock in the west and carbonate rock in the east. This flow system is estimated to transmit more than 86 million m^3 (70,000 acre-ft) of groundwater annually. Most of this flow moves through a thick sequence of Paleozoic carbonate rock extending throughout the subsurface of central and southeastern Nevada and is sometimes referred to as the central carbonate corridor.

Winograd and Thordarson (1975) characterized the major water-bearing units of the NNSS. Laczniak et al. (1996) revised these units into five general designations:

- The basement confining unit
- The carbonate-rock aquifer
- The eleana confining unit
- The volcanic aquifers and confining units
- The valley-fill aquifer

Although each of these units has internal variations and complexities, and different regions are influenced by different combinations of these units, the five designations provide a simple, yet accurate overview of the subsurface hydrogeology.

The divisions of different groundwater flow systems within the NNSS are based on the concept of groundwater subbasins, defined as the area that contributes water to a major surface discharge. Three principal groundwater subbasins have been identified within the NNSS region as the Ash Meadows, Oasis Valley, and Alkali Flat-Furnace Creek Ranch subbasins. However, the boundaries between these subbasins are not well defined and are the subject of current debate.

The Ash Meadows subbasin covers an area of about 10,360 km^2 (4,000 mi^2) and includes Yucca Flat and Frenchman Flat. Precipitation is believed to recharge the subbasin along its northern boundary at the Belted, Reveille, Timpahute, and Pahranagat Ranges; along its eastern boundary at the Sheep Range; and along its southern boundary at the Spring Mountains. Recharge is also suspected to occur within the subbasin at higher elevations of the Spotted, Pintwater, and Desert Ranges. Groundwater primarily flows through the lower carbonate-rock aquifer and discharges along a line of springs in Ash Meadows.

Groundwater flow rates through the Ash Meadows subbasin are highly variable; estimates range from less than 0.3 to more than 300 m/day (1 to 1,000 ft/day), depending on the unit. In general, the regional carbonate-rock aquifer is believed to transmit water at the fastest rate, whereas the basement and Eleana confining units transmit water at the slowest rate, and volcanic and valley-fill aquifers and confining units transmit water at intermediate rates.

Frenchman Flat Groundwater

Frenchman Flat lies within the Ash Meadows groundwater subbasin. In the Frenchman Flat area, three hydrostratigraphic units have been reported, but not confirmed. The uppermost unit is the Quaternary and Tertiary valley fill, the intermediate unit is the Tertiary volcanic ash and lava flows, and the Paleozoic carbonate is the lowermost unit. The following discussion presents a simplified view of the three units.

The depth to water at the Area 5 RWMS unit ranges from approximately 235 m (773 ft) to 272 m (892 ft) below the surface, based on measurements recorded at three pilot wells (UE5PW-1, UE5PW-2, and UE5PW-3) developed as part of site characterization activities. The pilot wells are located in a triangular array near the southeast, northeast, and northwest corner of the Area 5 RWMS. The elevation of the groundwater under the site is approximately 734 m (2,407 ft). Depth to water is the least in the playa lake area (approximately 3.5 km [1.5 mi] south of the Area 5 RWMS) at 213 m (700 ft) below the surface.

The characteristics of the uppermost stratigraphic unit, the Quaternary and Tertiary valley fill, directly affect possible release paths from the Area 5 RWMS and the Hazardous Waste Storage

Unit. This stratigraphic unit is composed of alluvial and colluvial materials that formed in an alluvial fan environment. The depth of the valley fill ranges from 183 m (600 ft) on the northwest corner to greater than 305 m (1,000 ft) on the southeast corner. The valley fill is connected hydraulically to the Tertiary volcanic ash and lava flows.

The lower hydrostratigraphic unit, the Paleozoic carbonate rocks, could be hydraulically connected with the upper Cenozoic hydrogeologic units, but the water levels in the carbonate are 3 to 9 m (10 to 30 ft) lower than the levels in the Cenozoic units.

7.3 Water Availability

Because the SWDS is located inside the Area 5 RWMS, and three monitoring wells located outside the Area 5 RWMS are currently used to monitor the groundwater for RCRA compliance, no additional monitoring activities are planned for this nonhazardous waste disposal site. The details of these monitoring activities are located as Exhibit P.2.e-1 in Volume III of the *RCRA Part B Permit Application for Waste Management Activities at the Nevada Test Site*. In addition, this SWDS receives less than 20 tons of waste per day based on a yearly average, and is located in a region that receives less than 62.5 centimeters (25 inches) of rain per year.

7.4 Condition of Waste

The condition of the waste and cover material are factors which inhibit the formation of leachate. The following factors are relevant:

- "Free liquids" are prohibited in the disposal site.
- Permissible waste added to the disposal site is not water saturated and sufficient unburdened soil is added as cover to assure that the total soil mass in the site is unsaturated. Due to the lack of moisture, there is no driving force for potential liquids to form leachate.

Given these factors, the potential for leachate formation is considered minimal.

Figure 1 Location of Area 5 RWMS

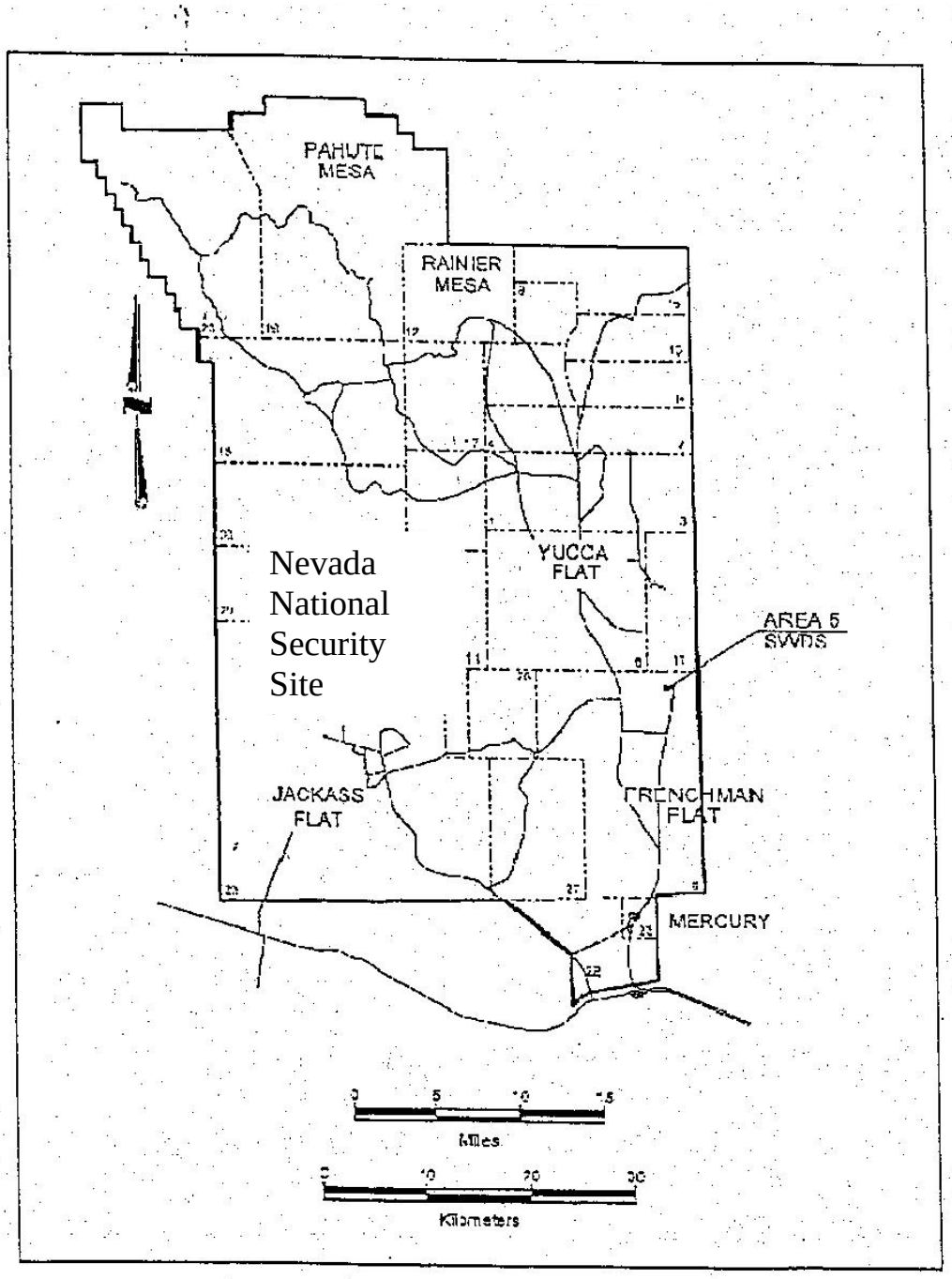

Figure 2 Location of Pit 20

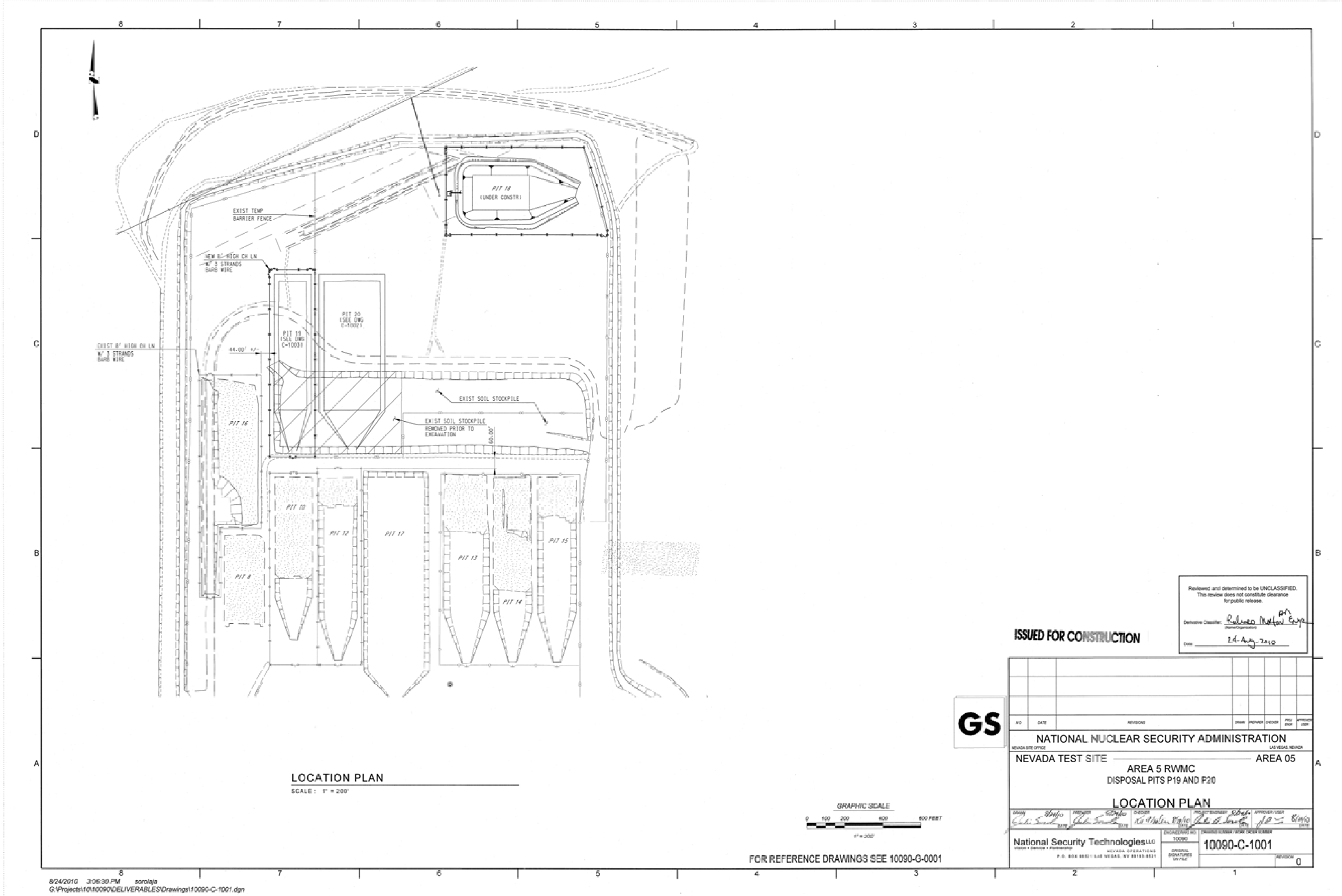
PIT 18 (UNDER CONSTR)
EXIST TEMP BARRIER FENCE
NEW 8' HIGH CH LN W/ 3 STRANDS BARB WIRE
EXIST 8' HIGH CH LN W/ 3 STRANDS BARB WIRE
PIT 20 (SEE DWG C-1002)
PIT 19 (SEE DWG C-1003)
44.00' +/-
EXIST SOIL STOCKPILE
EXIST SOIL STOCKPILE REMOVED PRIOR TO EXCAVATION
60.00'
PIT 16
PIT 10
PIT 12
PIT 17
PIT 13
PIT 14
PIT 15
PIT 8
LOCATION PLAN
SCALE: 1" = 200'
GRAPHIC SCALE
0 100 200 400 800 FEET
1" = 200'
FOR REFERENCE DRAWINGS SEE 10090-G-0001
ISSUED FOR CONSTRUCTION
Reviewed and determined to be UNCLASSIFIED. This review does not constitute clearance for public release.
Derivative Classifier:
Date: 24-Aug-2010
GS
NATIONAL NUCLEAR SECURITY ADMINISTRATION
NEVADA TEST SITE
AREA 05
AREA 5 RWMC
DISPOSAL PITS P19 AND P20
LOCATION PLAN
National Security Technologies LLC
10090
10090-C-1001
0
8/24/2010 3:06:30 PM
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Figure 3 Pit 20 Grading Plan

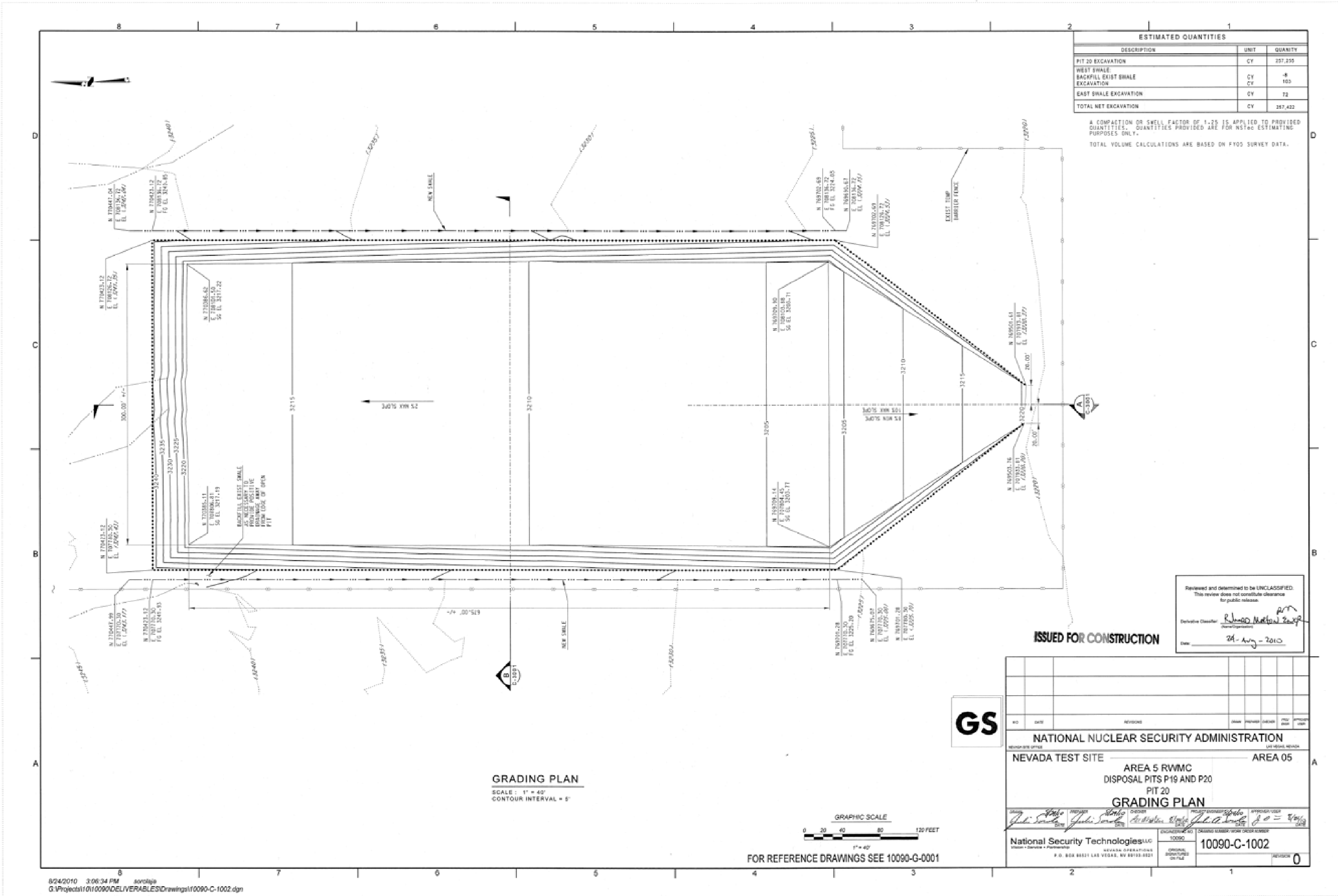
ESTIMATED QUANTITIES
DESCRIPTION | UNIT | QUANITY
PIT 20 EXCAVATION | CY | 257,255
WEST SWALE:
BACKFILL EXIST SWALE | CY | -8
EXCAVATION | CY | 103
EAST SWALE EXCAVATION | CY | 72
TOTAL NET EXCAVATION | CY | 257,422
A COMPACTION OR SWELL FACTOR OF 1.25 IS APPLIED TO PROVIDED QUANTITIES. QUANTITIES PROVIDED ARE FOR NSTec ESTIMATING PURPOSES ONLY.
TOTAL VOLUME CALCULATIONS ARE BASED ON FY05 SURVEY DATA.
NEW SWALE
EXIST TEMP BARRIER FENCE
2% MAX SLOPE
.5% MIN SLOPE
BACKFILL EXIST SWALE AS NECESSARY TO PROVIDE POSITIVE DRAINAGE AWAY FROM EDGE OF OPEN PIT
615.00' +/-
300.00' +/-
ISSUED FOR CONSTRUCTION
Reviewed and determined to be UNCLASSIFIED. This review does not constitute clearance for public release.
GRADING PLAN
SCALE: 1" = 40'
CONTOUR INTERVAL = 5'
GRAPHIC SCALE
0 20 40 80 120 FEET
1" = 40'
FOR REFERENCE DRAWINGS SEE 10090-G-0001
GS
NATIONAL NUCLEAR SECURITY ADMINISTRATION
NEVADA TEST SITE
AREA 05
AREA 5 RWMC
DISPOSAL PITS P19 AND P20
PIT 20
GRADING PLAN
National Security Technologies LLC
10090
10090-C-1002
REVISION 0
6/24/2010 3:06:34 PM sorolaja
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Figure 4 Pit 20 Sections

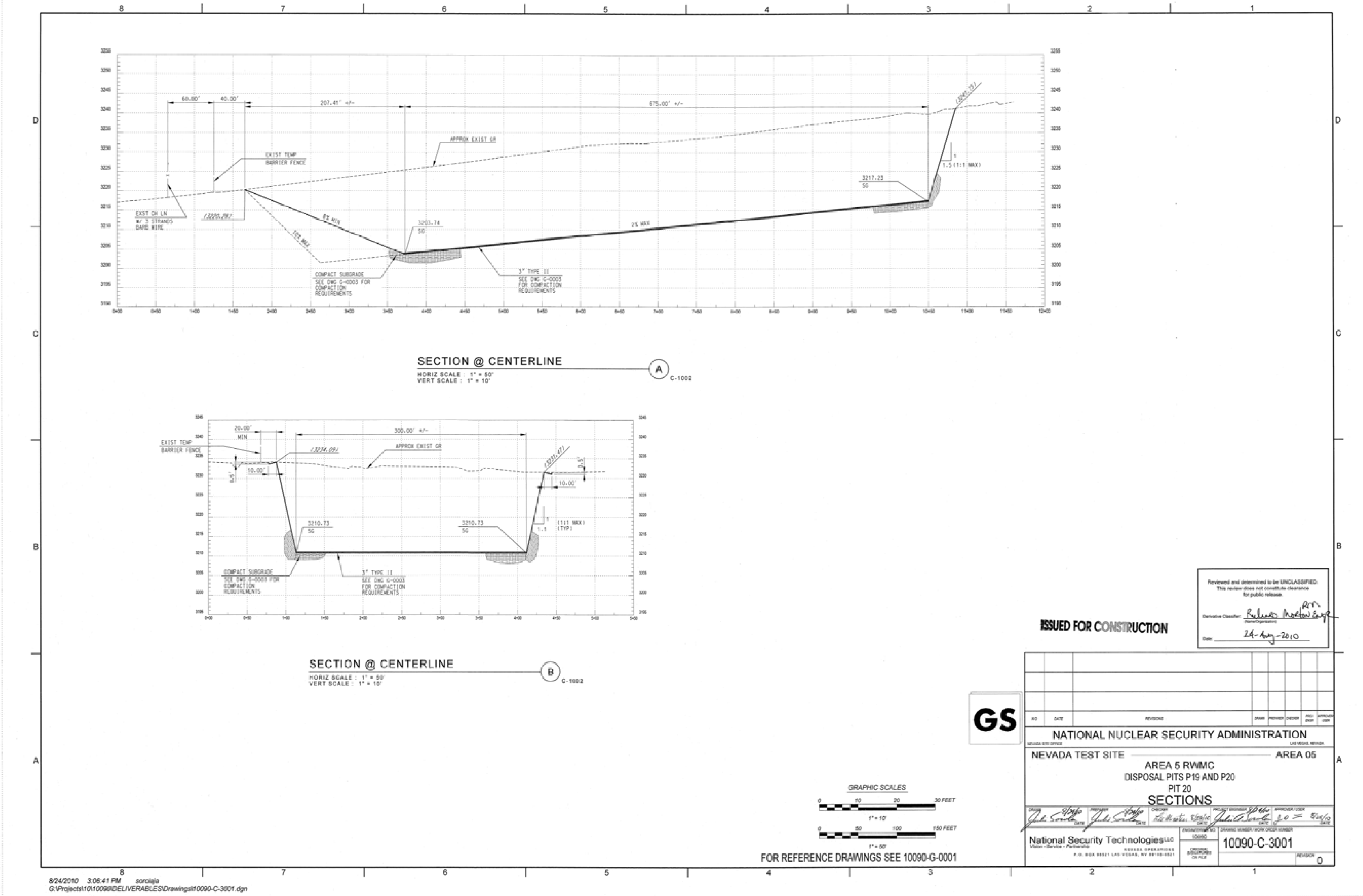
APPROX EXIST GR
EXIST TEMP BARRIER FENCE
EXIST CH LN W/ 3 STRANDS BARB WIRE
60.00'
40.00'
207.41' +/-
675.00' +/-
3203.74 SG
3217.25 SG
2% MAX
COMPACT SUBGRADE SEE DWG G-0003 FOR COMPACTION REQUIREMENTS
3" TYPE II SEE DWG G-0003 FOR COMPACTION REQUIREMENTS
SECTION @ CENTERLINE
HORIZ SCALE : 1" = 50'
VERT SCALE : 1" = 10'
A
C-1002
20.00' MIN
300.00' +/-
10.00'
3210.73 SG
SECTION @ CENTERLINE
HORIZ SCALE : 1" = 50'
VERT SCALE : 1" = 10'
B
C-1002
Reviewed and determined to be UNCLASSIFIED.
This review does not constitute clearance for public release.
ISSUED FOR CONSTRUCTION
GS
NATIONAL NUCLEAR SECURITY ADMINISTRATION
NEVADA TEST SITE
AREA 05
AREA 5 RWMC
DISPOSAL PITS P19 AND P20
PIT 20
SECTIONS
National Security Technologies LLC
10090-C-3001
GRAPHIC SCALES
1" = 10'
1" = 50'
FOR REFERENCE DRAWINGS SEE 10090-G-0001
8/24/2010 3:06:41 PM
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Exhibit 1

Operation and Maintenance Plan for Area 5 Asbestiform Low-Level Solid Waste Disposal Site

September 2010
Rev. 1

Prepared for the

U.S. Department of Energy
National Nuclear Security
Administration Nevada Operations Office

by

National Security Technologies, LLC

Table of Contents

Acronyms

ALLW	Asbestiform Low-Level Waste
CFR	Code of Federal Regulations
LLHB	Low-Level Radioactive Hydrocarbon-Burdened
LLW	Low Level Waste
NAC	Nevada Administrative Code
NDEP/BFF	Nevada Division of Environmental Protection Bureau of Federal Facilities
NNSA/NSO	U.S. Department of Energy National Nuclear Security Administration Nevada Site Office
NNSS	Nevada National Security Site
NNSSWAC	Nevada National Security Site Waste Acceptance Criteria
NSTec	National Security Technologies, LLC
PCBs	Polychlorinated Biphenyls
RWMS	Radioactive Waste Management Site
RWO	Radioactive Waste Operations
SWDS	Solid Waste Disposal Site
WMP	Waste Management Program

1.0 Area 5 Asbestiform Low-Level Solid Waste Disposal Site (SWDS) Operation

1.1 Collection and Transportation

Waste Management Program/Radioactive Waste Operations (WMP/RWO) personnel will be responsible for the day-to-day operation and maintenance of the disposal site. The generator will be responsible for preparation of appropriate documentation required by the Nevada National Security Site Waste Acceptance Criteria (NNSSWAC), as well as the transportation of the waste.

1.2 Personnel

The following organizations, personnel, or their designees are responsible for waste stream approval, transporter approval, disposal packet approval, and shipment refusal:

- Waste stream approval and shipment authorization – National Nuclear Security Administration/Nevada Site Office (NNSA/NSO) Assistant Manager for Environmental Management
- Transporter approval – waste generator facility
- Disposal packet approval – National Security Technologies (NSTec) WMP/RWO Facilities Supervisor, or designee
- Shipment refusal – NSTec/WMP/Low Level Waste (LLW) Project Manager, or designee

Personnel who will staff the SWDS operations are those who are trained to conduct operations at the Area 5 Radioactive Waste Management Site (RWMS). Personnel are trained to verify that each shipment meets the requirements of the NNSSWAC (current revision).

Training includes, but is not limited to, Hazardous Waste Site General Worker training (as required by Title 29 Code of Federal Regulations (CFR) 1910.120, “Hazardous Waste Operations and Emergency Response”), Radiation Worker II training (as mandated by Title 10 CFR 835, “Occupational Radiation Protection”), and Hazard Communication Training (as mandated by Title 29 CFR 1910.1200). In addition, personnel participating in asbestos disposal operations will be given an annual Asbestos Awareness Training, Title 29 CFR 1910.1001, “Asbestos”).

1.3 Processing In

Waste may only be processed in while disposal site operators are present. At Gate 100, the driver will be badged for entry onto the Nevada National Security Site (NNSS). At

the Area 5 RWMS, the transporter must check in through the main office. Shipping documents and records will be reviewed at this time to verify that this is an authorized shipment for disposal in the SWDS.

1.4 Off-Loading

If any container is found to be damaged or breached during inspection, off-loading, or disposal, the container will be placed on a plastic sheet (or equivalent) in the staging area to minimize the spread of contamination; evaluated by the WMP/LLW Program Manager, or designee; and corrective action will be implemented. Examples of corrective action may include:

- Patching the container
- Taping plastic sheets to wood containers
- Overpacking,

Waste material containers are to be stacked in an orderly manner to prevent an unsafe working face of the stack. Boxes are stair-stepped, to the extent practicable, to prevent them from falling forward, and drums are nested so as to prevent roll-away. Actual configuration may vary as determined by RWO personnel. Waste containers will be stacked in the SWDS in such a manner that all portions of each package are approximately 1.2 m (4 ft) below the natural grade. In addition, the location of each container will be recorded in the LLW Information System database.

1.5 Operations Log

An Operations log will be maintained to indicate the following:

- Each load of waste that is disposed, including date, time, tractor number, trailer number, generator, shipment number, pre-entry radiation readings, waste type and waste stream identification, waste package types, and departure time
- Identification of personnel entering the disposal site (accomplished through the access register at the main office)
- Routine disposal site activities
- Nonroutine events such as unforeseen circumstances.

1.6 Inspections

All waste packages are inspected for leaks and integrity as they are unloaded. In addition, an inspection of the site is conducted weekly. The inspection will consist of the following:

- Erosion of the run-on control structures
- Settling of the covered material
- Condition of fencing and signs
- Housekeeping

Corrective measures will be taken as soon as possible to correct the deficiency. All corrective measures and their completion dates will be recorded. Records will be kept onsite for the current year as well as the previous year.

1.7 Signage/Hours of Operation

A sign is posted at the entrance to the disposal site that informs personnel of an emergency contact telephone number. This is not a publicly accessible waste disposal site, and waste disposed is subject to prior scheduling and approval. The site is normally open only during the day shift of the normal work week (currently Monday through Thursday, excluding holidays; however, it is possible to make special arrangements for nonscheduled workdays). Approved generators are informed of the hours that waste may be received at the Area 5 RWMS. A fee schedule is provided to the waste generators in advance of waste shipment. Access is controlled through the main Area 5 RWMS office. A sign at the entrance of Area 5 SWDS active cell(s) indicates that an asbestos dust hazard may be present. The barrier to the active cell(s) remains locked when the cell is not occupied. The site is protected from intrusion by a secured entry gate and a fence completely surrounding the site. In addition, the entire RWMS is also surrounded by a secured fence.

1.8 Disposal Site Equipment

The equipment used at the disposal site consists of a forklift, a front-end loader, a crane, a water truck, and a motor grader. Other types of equipment that may be used at the disposal site on an irregular basis include compactors and rollers. Equipment will be deployed on an as-needed basis and may be in addition to those described above.

1.9 Operating Records

Records will be maintained by designated disposal site personnel. The following documentation must be present with each load of waste:

- A Bill of Lading or Load Verification documentation
- Weigh ticket or weight identified by another method
- Asbestiform Shipment Notification (for regulated Asbestiform Low-Level Waste(LLW))

Prior to acceptance, the disposal site operator will ensure that all documentation is complete, accurate, and legible. If the documentation is not acceptable, the load may be rejected. The waste may also be rejected if, upon inspection, it is determined that it does not conform to NNSSWAC or is inadequately represented.

The amount and source of waste delivered will be documented in the operating record.

Additional documentation required as operating records are Access Records and Inspection checklists. All shipments disposed in the SWDS will be recorded in the Area 5 RWMS database for an indefinite period. Hard copy records will be stored for at least two years at the Area 5 RWMS office. After this period, records will be archived at a designated facility. These records include the following information:

- Name, address, phone number of waste generator and waste transporter
- Quantity of waste disposed in cubic meters or cubic yards and date of receipt
- Asbestiform Shipment Notification (for regulated ALLW), which includes net weight, net volume, and a certification statement that the wastes in the shipment are those authorized by NNSA/NSO
- Bill of lading or shipping manifest with date of departure, number of containers, and type of each container

Other paperwork required by the NNSSWAC (e.g., Certification Statements and Package Storage and Disposal Forms)

1.10 Cover and Lift Control

Waste containers will be stacked in the SWDS in such a manner that all portions of each package are approximately 1.2 m (4 ft) below the natural grade. In addition, the location of each container will be recorded in the LLW Information System database. Five complete rows, or approximately 6.1 m (20 ft), plus the stair-step configuration from the front of the face, will always be exposed (not covered and not trafficable), ensuring a stable working surface for equipment placing the operational cover material. The operational cover consists of native soils from the spoils pile.

The packaging requirements (use of steel drums, lined wooden boxes, steel boxes, or Sealand® containers) prevent asbestos dust from being released into the air and meet the intent of state regulatory requirements for daily cover to control disease vectors, fire, odors, and blowing litter. An operational cover with a minimum of 2.4 m (8 ft) will be placed on the packages. The operational cover will be graded such that run-on will be directed away from the open pit, and crowned to prevent pooling and infiltration.

1.10.1 Cells/Compaction

Soils used to fill void spaces between rows and for operational cover will consist of clean native soil obtained from areas near the disposal pit.

It is not expected that large quantities of combustible construction and demolition debris will be disposed in the site. Therefore, the requirements of Nevada Administrative Code (NAC) 444.652, "Disposal of Special Wastes: Construction and Demolition Wastes," which require cross-sectioned cells separated by compacted cover material, are not applicable.

1.10.2 Operational/Temporary Cover

Regulated ALLW, LLW, LLW containing Polychlorinated Biphenyls(PCBs), and Low-Level Radioactive Hydrocarbon-Burdened (LLHB) waste is packaged inside steel drums, lined wooden boxes, steel boxes, or Sealand® containers. This prevents dust from being released into the air and meets the intent of state regulatory requirements for daily cover to control disease vectors, fire, odors, and blowing litter. An operational cover will be placed on the packages. The operational cover will be graded such that run-on will be directed away from the open pit, and crowned to prevent pooling and infiltration and to maximize evaporation of the water. Cracks, depressions, and erosion will be repaired promptly to maintain cover integrity.

1.11 Dust Control

Water trucks will be used to suppress dust on the compacted dirt roads, as necessary, and during operations involving compaction or production of cover material.

1.12 Litter Control

All material disposed in the SWDS will be containerized or packaged in such a manner that windblown material will not exist at this disposal site. This will ensure that the disposal site maintains an aesthetically pleasing environment. Scavenging and salvaging are not permitted in the disposal cell.

1.13 Vector Control

Because the regulated ALLW will be containerized, no vectors are anticipated.

1.14 Fire Protection

Open burning of solid waste is prohibited by NAC 444.6675, “Operating Criteria, Compliance with State Implementation Plan; Open Burning of Certain Solid Wastes Prohibited.” However, fires could be initiated through malfunctioning electrical devices or disposal site equipment. Fire extinguishers are located in the Controlled Area Access Building (CAAB) and on disposal site equipment.

In the event of a fire, the disposal site personnel will call the NNSS Fire Department by dialing 9-1-1 on the telephone or by using a “Mayday” signal on the NNSS radio communication system. After making this notification, disposal site personnel may use hand-held fire extinguishers to control small fires. Under no circumstances will disposal site operators attempt to extinguish a large fire without instructions from the NNSS Fire Department.

The fire station serving the disposal site is located approximately 24 km (16 mi) away and operates 24 hours per day, 7 days a week. In addition, another fire station is available in Area 6, approximately 21 km (13 mi) away, during normal working hours.

1.15 Methane Gas/Explosive Gas Monitoring

It is not anticipated that the waste and environmental media will generate methane gases. Based on the physical and chemical composition of the buried material and low annual rainfall at the disposal site, the generation and accumulation of explosive or toxic gases is considered minimal or nonexistent. Therefore, methane gas/explosive gas monitoring is not considered necessary during the active life of the SWDS, but will be evaluated at or after the time of closure.

1.16 Unforeseen Circumstances

1.16.1 Medical Emergency

Emergency medical services are located in Area 6, approximately 21 km (13 mi) away, and are available during working hours. Disposal site personnel may contact Medical Services by calling 295-3490 or 9-1-1, or by using a "Mayday" signal on the NNSS radio communication system.

1.16.2 Natural Events

The disposal site is protected from run-on water through flood protection structures and soil berms. However, rainfall directly on the site may result in muddy conditions which require that the site be closed for a short period of time until additional native soil is added to muddy areas to provide a workable surface.

1.16.3 Equipment Failure

Equipment at the disposal site will be maintained to prevent failure. However, there may be circumstances where equipment failure may occur; and the equipment cannot be repaired in a timely manner. Backup equipment (forklifts, loaders, scrapers, dozers, etc.) will be obtained from other NNSS operations to provide an operational cover, as needed, while the equipment dedicated for the disposal site is being repaired.

1.17 Solid Waste Report

NNSA/NSO will submit a solid waste report to the Nevada Division of Environmental Protection Bureau of Federal Facilities (NDEP/BFF), for the preceding calendar year, by January 30 of each year. NNSA/NSO will include LLW, LLW containing PCBs, LLHB waste and regulated ALLW as separate items on the annual waste report. Information contained therein will include:

- Net weight of waste material
- A list of generators for the reporting period
- Deviations from the NNSSWAC, associated with the regulated ALLW, LLW, LLW containing PCBs, and LLHB waste

Exhibit 2

Health and Safety Plan for Area 5 Asbestiform Low-Level Solid Waste Disposal Site

September 2010
Rev. 1

Prepared for the

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office

by

National Security Technologies, LLC

NATIONAL SECURITY TECHNOLOGIES COMPANY PLAN	
Title: **Health and Safety Plan for the Area 5 Radioactive Waste Management Complex**	Document Number: **PLN-1022**
	Revision Number: **3**
Responsible Organization: **Defense Facilities and Nuclear Operations**	Effective Date: **09/01/10**
	Page **1** of **22**
Revision Control: This company plan supersedes PLN-1022, "Health and Safety Plan for the Area 5 Waste Examination Facility," Revision 2, dated October 2, 2008.	

Health and Safety Plan for the Area 5 Radioactive Waste Management Complex

PLN-1022 Rev 3

September 2010

Prepared by:

National Security Technologies LLC
Defense Facilities and Nuclear Operations

ADMINISTRATIVE INFORMATION

Site: Nevada Test Site Area 5 Radioactive Waste facility

Project: Radioactive Waste Management Complex

Date Prepared: 09/01/10

APPROVALS

I have read and approved this HASP with respect to project hazards and regulatory requirements.

Original Signed By; Jerry Freter — 08/18/10
Jerry Freter, Date
Nuclear Facilities Manager

Original Signed By; Michael McCullough — 08/18/10
Michael McCullough, Date
Waste Operations Manager

Original Signed By; Bradley Bounds — 08/18/10
Bradley Bounds, Date
Health Physics Supervisor

Original Signed By; Donald Russell — 08/18/10
Donald “Wade” Russell, Date
Safety Professional

REVISION LOG

Revision #	Page #	Description of Revision
0	All	New Document. This document supersedes OP-2151.434 "Health and Safety Plan for the TRU Pad Cover Building" and OP-2151.525, "Health and Safety Plan for the Waste Examination Facility."
1	V	Regenerated TOC
	1, 3	SCS changed to Permacon
	13	Added 1.9B "(Except the VERB);" "three (3);" "two (2)."
		Added 1.9C "Nuclear Criticality Safety Limits (VERB Only) · TRU material shall not exceed 600 PE-g; · Fissile materials shall not exceed 450 Pu-239 FGE."
2	All	Document revised for the S02C material move
3	All	Document was revised to incorporate the LLW HASP and implement the annual safety basis update.

NOTICE

Personnel who may be exposed to hazardous waste or material at the RWMC must understand the potential hazards and the mitigations. Personnel unable to read or understand this document must have their supervisor explain its contents prior to working at the site. Individuals who have questions on information found in this document should discuss their questions with their supervisor for clarification. If the question cannot be answered to the satisfaction of the individual, contact the Site Health and Safety Professional for assistance.

TABLE of CONTENTS

ACRONYMS and ABBREVIATIONS

ALARA	as low as reasonably achievable
ALI	annual limit on intake
APF	Assigned Protection Factor
CFR	Code of Federal Regulations
DAC	Derived Air Concentrations
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DSA	Documented Safety Analysis
EPA	U.S. Environmental Protection Agency
ETS	Environmental Technical Services
HASP	Health and Safety Plan
lkm	kilometer(s)
LLW	low-level waste
mi	mile(s)
MLLW	mixed low-level waste
MLU	Mobile Loading Unit
MTRU	mixed transuranic waste
NIOSH	National Institute for Occupational Safety and Health
NNSA/NSO	National Nuclear Security Administration Nevada Site Office
NSTec	National Security Technologies, LLC
NTS	Nevada Test Site
OCC	Operations Coordination Center
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
RCD	Radiological Control Department
RCT	Radiological Control Technician
RVT	Remote Viewing Trailer
RTR	Real Time Radiography
RWMC	Radioactive Waste Management Complex
RWP	Radiological Work Permit
SAC	Specific Administrative Controls
SSC	structures, systems, and components
TLO	Transuranic Loading Operations
TSR	Technical Safety Requirements
TPCB	Transuranic Pad Cover Building
TRU	transuranic
TRU Pad	Transuranic Waste Storage Pad
VOC	Volatile Organic Compounds
WAC	Waste Acceptance Criteria
WEF	Waste Examination Facility
WIPP	Waste Isolation Pilot Plant

INTRODUCTION

This Health and Safety Plan (plan) establishes the health and safety requirements for low-level and low-level mixed waste operations at the Area 5 Radioactive Waste Management Complex (RWMC). This plan is applicable to National Security Technologies, LLC (NSTec), personnel and subcontractors, assigned to the facility. This plan was developed to identify, evaluate, and control safety and health hazards for hazardous waste operations in accordance with Title 29 Code of Federal Regulations (CFR) Part 1910.120, "Hazardous Waste Operations and Emergency Response." During development of this health and safety plan, consideration was given to current safety standards as defined by U.S. Environmental Protection Agency Occupational Safety and Health Administration National Institute for Occupational Safety and Health (EPA/OSHA/NIOSH) health effects and standards for known contaminants and procedures designed to account for the potential of exposure to unknown substances.

SITE LOCATION/DESCRIPTION

The RWMC is located at the Nevada Test Site (NTS) in southern Nevada, 65 miles (mi [105 kilometers {km}]) northwest of Las Vegas, Nevada (Figure 1-1). The NTS is subdivided into administrative areas with Area 5 located on the eastern edge. The RWMC is located in the northeast quadrant of Area 5 in a topographically closed basin approximately 14 mi (22 km) north of Mercury (Figure 1-2).

The Area 5 RWMC provides the systems, structures, and supporting infrastructure to implement NTS waste management functions. These functions include low-level waste (LLW) and mixed low-level waste (MLLW) disposal, characterization, and treatment; transuranic (TRU) waste characterization, storage, repackaging, and shipping; classified material storage, and several secondary support functions such as LLW/MLLW sampling.

The mission of the Area 5 RWMC is to serve as the western regions national disposal site for LLW and MLLW generated from U.S. Department of Energy (DOE) and U.S. Department of Defense facilities. Presently, LLW, MLLW, asbestos and PCB bulk product LLW are disposed in the Area 5 disposal cells.

OPERATIONS PERFORMED AT THE AREA 5 RWMC

The focus of this plan is mixed waste operations at the Area 5 RWMC (Figure 1-3, "Area 5 RWMC"). LLW/MLLW containers will be received, surveyed, inspected, and offloaded into the appropriate disposal cells. MLLW may also require characterization and approved treatment. Containers of MLLW may be verified using the Real Time Radiography (RTR) system and may be temporarily stored on the TRU Pad.

The primary function of the TRU Pad/TRU Pad Cover Building (TPCB) is as an above-ground retrievable storage area for packages containing mixed waste. The storage area was designed to meet Resource Conservation and Recovery Act (RCRA) construction standards because some of the TRU waste containers once stored there contained hazardous constituents. The TRU Pad is an asphalt pad surrounded by a continuous curb along the boundaries. Underneath the asphalt pad is a Petromat liner (leak-proof protective liner) used to prevent rainwater or spills from reaching the soil. The TPCB is a fabric covered steel frame structure which occupies a portion of the TRU Pad. The TPCB was constructed to protect containers from weathering and provide an improved environment for operations. Other operations performed on the TRU pad are as follows: venting and sampling of waste containers, treatment (macroencapsulation), packaging and sampling of waste containers, TRU Loading Operations (TLO), and storage of TRU waste and MLLW.

Periodic inspections of exposed waste containers are required to help ensure that the waste containers can continue to meet their functional requirements. Inspections will also be performed on the equipment used to handle waste containers in accordance with company organization procedures. Inspection of the equipment will ensure their ability to perform their design function.

Facility personnel will maintain operating records to demonstrate that control systems and items which will be used in operations will have safe use capabilities. Records verify that an activity was performed in accordance with applicable requirements for safe operations.

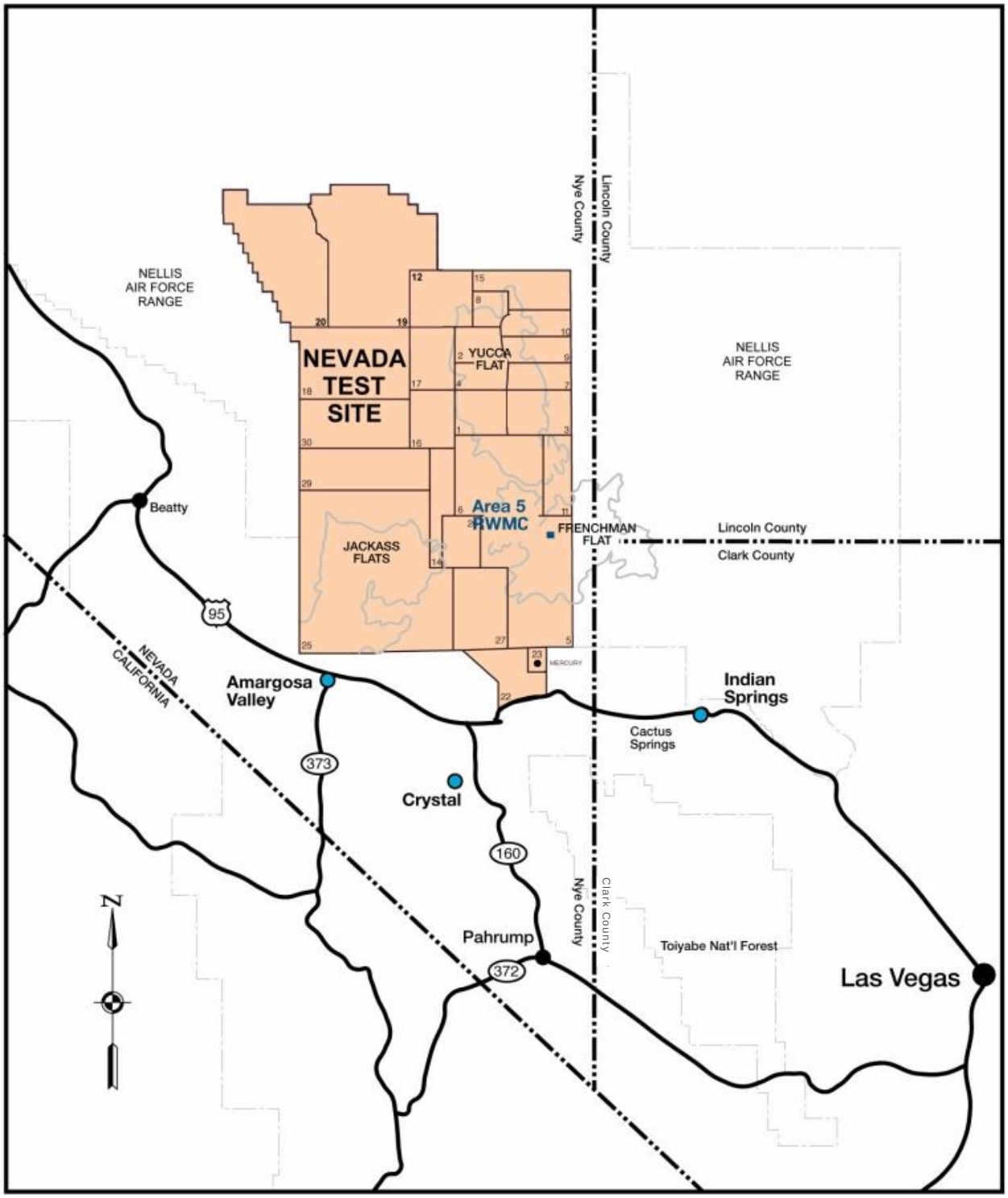

Figure 1-1. NTS Location

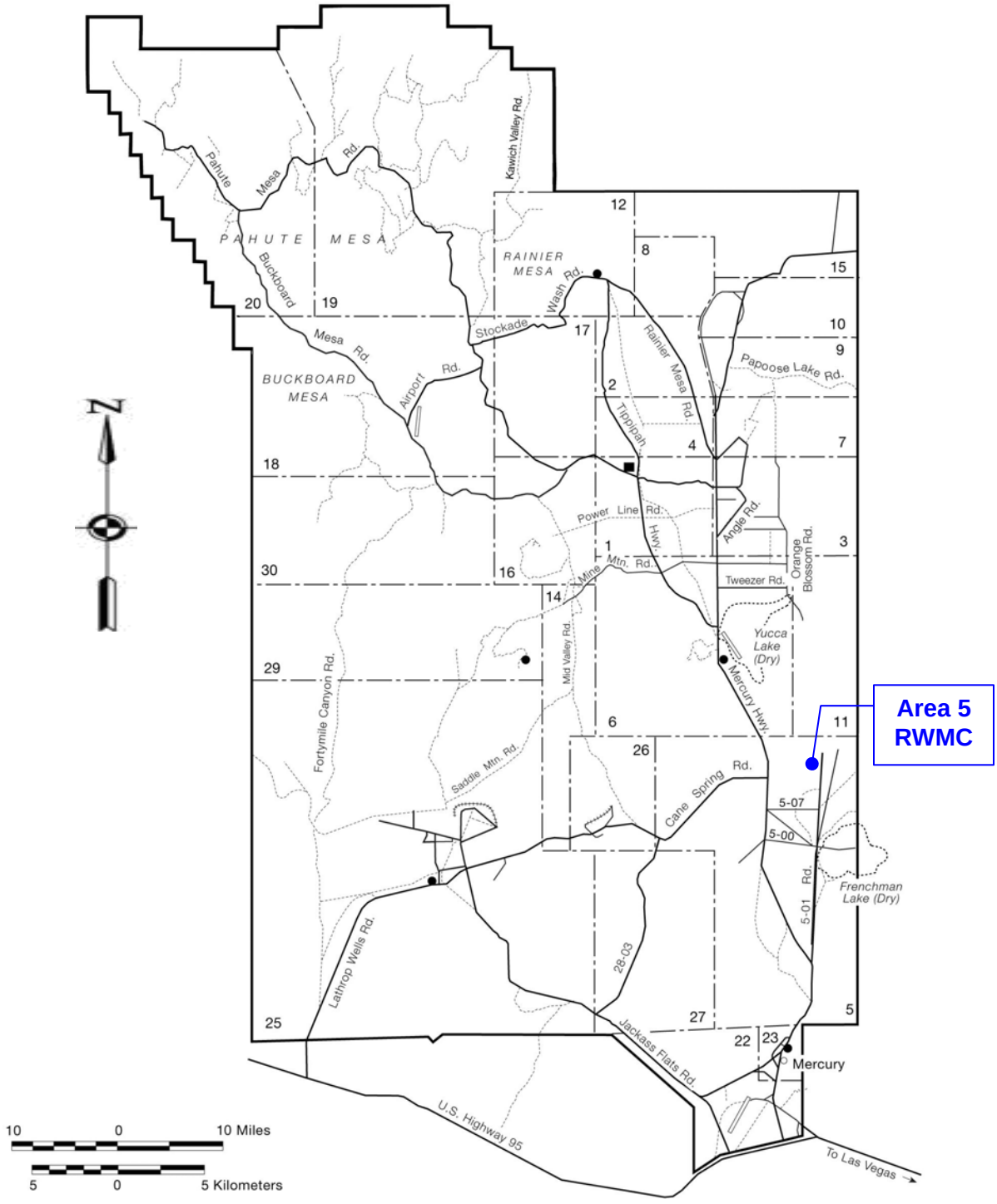

Figure 1-2. NTS Map

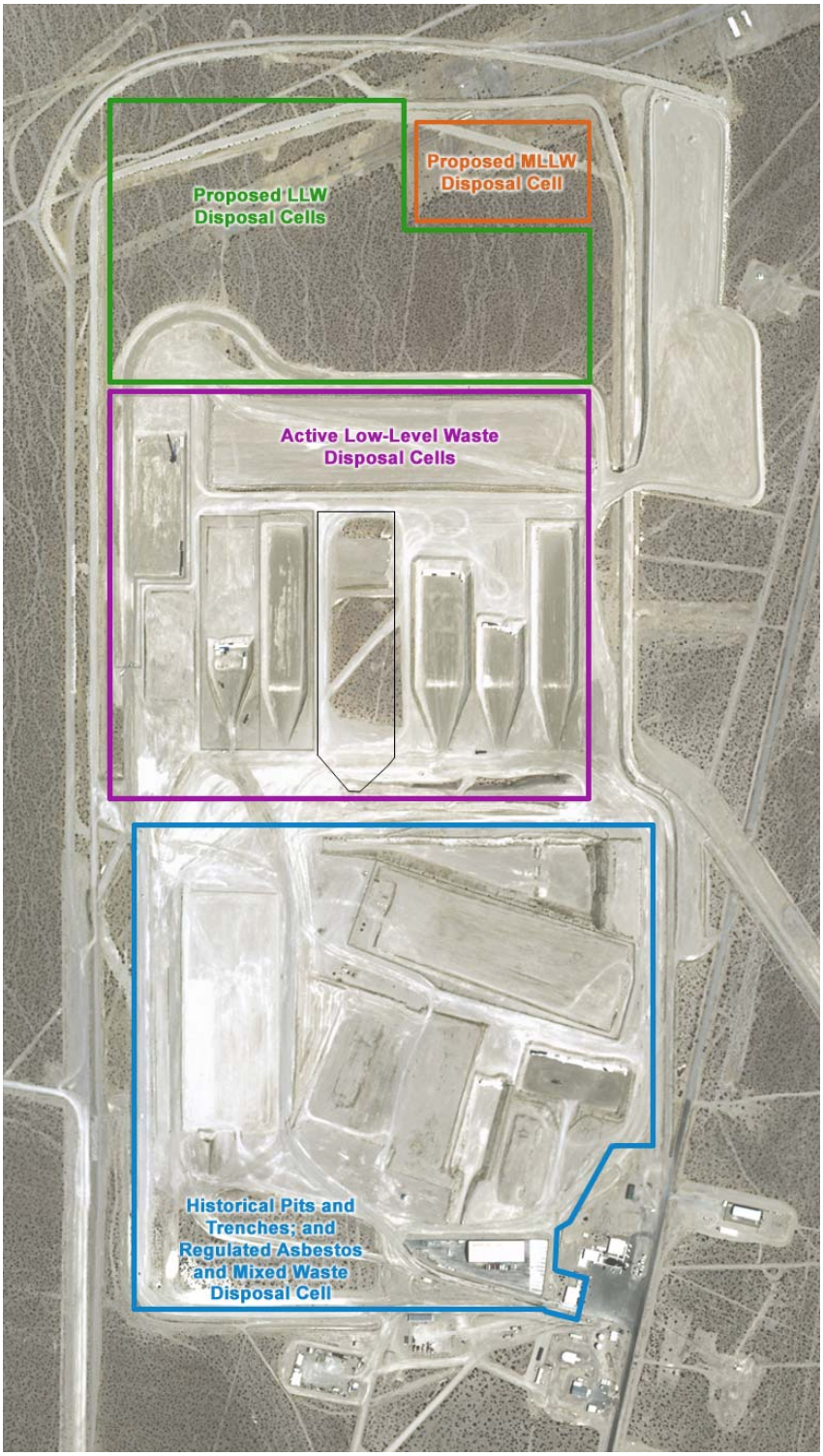

Figure 1-3. Area 5 RWMC Site Map

HEALTH AND SAFETY PLAN

1.0 SAFETY AND HEALTH HAZARD ANALYSIS

1.1 Radiological Hazards

1.1.1 Identified Radiological Hazards

A. Penetrating x-rays generated by the RTR machine.

B. Personnel who handle LLW/MLLW may be exposed to alpha, beta, gamma and neutron radiation. The main radiological hazard associated with this waste material is from the possible suspension of the particulate (alpha emitters) waste material in an uncontrolled manner. Any waste material that has been accidentally released to the work area or to the outside atmosphere poses an internal radiological hazard. Isotopic particulates dispersed to the atmosphere are considered a hazard because of potential inhalation by workers or the public. Inhaled alpha emitters produce a secondary ionization within the lungs.

1.1.2 Radiological Hazard Mitigation

A. A 1-inch (in. [2.5 centimeter {cm}]) thick, lead-lined vault houses the RTR operational components. The vault measures approximately 12 feet (ft [3.6 meters {m}]) wide by 18 ft (5.5 m) long by 8 ft (2.5 m) high. The vault is constructed 4-ft (1.2-m) by 8-ft (2.5-m) lead plates supported by structural steel beams and channel. The vault construction and assembly aids in minimizing the potential leakage of X-ray radiation during operation by using a system of overlapping seams and labyrinth penetrations. The RTR is also monitored by a Radiological Control Technician (RCT) during RTR operations.

B. Bioassay sampling requirements will be specified in a Radiological Work Permits (RWP). Personnel who sign the applicable RWP or the Plan of Day (POD) attendance roster will submit bioassay samples in accordance with the frequency stated in the plan.

C. Using as low as reasonably achievable (ALARA) techniques minimizes external whole body radiation and extremity exposures from drum-handling operations.

D. As with any work associated with LLW/MLLW, substantial engineering designs and precautions are taken so that the radioactive materials stay within the confines of the primary containment.

E. RWPs and activity level work documents (ALWDs) are prepared for this facility. The RWPs and ALWDs state the appropriate radiological controls for a given activity. RCTs are responsible for the oversight and enforcement of these controls. Workers are responsible for implementation and compliance with RWPs.

F. To reduce the spread of radiological contamination, RCTs perform surveys of personnel and equipment. The surveys assure adherence to established action limits for removable and fixed contamination as directed by company procedures and the DOE/NV/25946--801, "Nevada Test Site Radiological Control Manual."

1.2 Fire and Explosion Hazards

1.2.1 Identified Fire and Explosion Hazards

A. Waste approved for disposal at the Area 5 RWMC must meet specific requirements of the NTS Waste Acceptance Criteria (WAC). The NTS WAC strictly prohibits explosive materials. Based on acceptable knowledge and the experience gained from the waste certification process, no known explosive materials will be present in the MLLW.

B. Vehicle/equipment accident may result in a fuel leak that ignites.

C. Range fires may be either of natural origin (e.g., lightning) or artificial origin (e.g., cigarettes, vehicle exhaust systems, bottle glass). Desert ground cover in the area is generally dry and sparse-to-moderate in density. Although fires may spread over wide areas (especially in conjunction with high-wind conditions), the intensity of any such fires is expected to be low due to the low density of natural combustible materials.

1.2.2 Fire and Explosion Hazard Mitigation

A. All of the waste containers are visually inspected for physical deterioration or other signs that would indicate over pressurization.

B. Vehicle/equipment controls, including posted speed limits, established vehicle lanes, and restricted area/separation distances are in use at the RWMC to minimize the risk of fire and explosion. Also, escorts and spotters are required to observe operations and control vehicles to prevent accidents.

C. A controlled combustible zone is maintained around each disposal cell/Operational Unit to limit the amount of flammable material.

D. Personnel response to a fire at the RWMC is addressed in Emergency Plan Implementing Procedure RWMC-EPIP-01, "Facility Emergency Response Actions." NTS Fire Department response is coordinated through a written fire response plan.

E. The fire hazards in the RTR are mitigated by a water-based fire suppression system and an installed fire alarm system.

F. Generators of MLLW are prohibited from packaging incompatible waste together. This is verified by the waste certification process and the waste acceptance procedure at Area 5. Containers with liquids are segregated and stored on spill pallets.

1.3 Chemical Hazards

1.3.1 Identified Chemical Hazards

A. Containerized hazardous waste is disposed of in a permitted disposal cell or stored in permitted locations.

B. The NTS WAC allows small quantities of toxic metals, such as beryllium and chromium; and organic compounds, such as benzene, carbon disulfide, and carbon tetrachloride.

C. Compressed gas cylinders are used around the RWMC for equipment/facility repair and environmental monitoring.

D. Chemicals will be used for janitorial. Samples of the chemicals used at the RWMC are bathroom cleaner, glass cleaner, and floor cleaners.

1.3.2 Chemical Hazard Mitigation

A. Employees are provided job-specific training on the potential hazards of chemical substances normally found on site. Appropriate personal protective equipment (PPE) is provided and used per job hazard analyses and applicable RWPs

B. Hazardous waste received at the RWMC from offsite generators must conform to the Land Disposal Restrictions (LDR) as required in the NTS WAC to be accepted for disposal by the state of Nevada.

C. The hazardous waste received at the RWMC will be containerized in appropriate U.S. Department of Transportation (DOT) specified packaging. These containers may have hazardous materials that are equal to or less than the amount set forth in Resource Conservation and Recovery Act (RCRA).

D. All gases must be properly bonded and stored in accordance with Company Directive, CD-P280.044, “Compressed Gas Cylinders”.

E. Material Safety Data Sheets (MSDSs) for all known chemicals are maintained at the job site. A copy of the hazardous chemicals list is maintained in the front of the MSDS file in accordance with CD-P280.021, “Hazard Communication.”

F. NSTec Company Directives provide guidance, establish methods, and assign responsibilities for managing MSDSs and chemical lists, and for labeling hazardous chemicals used in the workplace.

1.4 Physical Hazards (Occupational/Industrial)

1.4.1 Identified Physical Hazards

A. Heavy equipment used for this project includes trucks, forklifts, and miscellaneous heavy equipment.

B. Slips, trips, and falls are possible due to uneven terrain and the location of the facilities.

C. Pinch points, hot work, and heavy lifting will be encountered during waste handling operations.

1.4.2 Physical Hazard Mitigation

A. Personnel are required to use proper PPE during operations. The normal PPE required is as follows: hard hats, steel-toed shoes, safety glasses with side shields, hearing protection, proper work gloves, and high-visibility clothing (shirts, jackets, vests or other) with approval of Area 5 Safety Professional,(when working around vehicular and/or heavy traffic).

B. The LLW Supervisor ensures that waste container movement is conducted only by trained personnel using approved equipment and in accordance with applicable operating procedures. Only qualified personnel operate or service heavy equipment.

C. Lifting equipment, hoists, slings, chains, and rigging accessories will be inspected daily before use. Drum-handling devices are operated and maintained by personnel trained and qualified in accordance with provisions specified by the manufacturer. Hoisting and rigging operations are conducted in accordance with approved company directives.

D. Machinery and equipment are inspected to ensure that moving parts are properly guarded or isolated. Employees report unguarded moving or rotating parts to the LLW Supervisor.

1.5 Biological Hazards

1.5.1 Identified Biological Hazards

A. Snakes, spiders, scorpions, coyotes, foxes, antelope, and other animals may be encountered.

B. Hantavirus has been detected in a small percentage of the deer mice populations in this area. Exposure to Hantavirus may result in a potentially fatal lung disease.

1.5.2 Biological Hazard Mitigation

A. If such animals are found personnel are directed to avoid harassing or disturbing them. Under no circumstances should these animals be fed.

B. Personnel are to use caution when putting on protective clothing, and when placing hands and feet into crevices and sheltered areas.

C. Personnel are instructed to avoid all contact with rodents and rodent excretions, and shall notify their supervisor if either is discovered on site in accordance with CD-P280.025, “Hantavirus Prevention and Control.”

1.6 Noise Hazards

1.6.1 Employees may be exposed to noise hazards. Sound level surveys are performed when new noise-generating work activities are initiated or new equipment is added to the process. Areas with sound levels above 85 decibels, A-weighted (dBA) will be designated as a hearing protection area in accordance with CD-P280.010, "Noise and Hearing Conservation Program."

1.7 Environmental Hazards or Impact to the Environment

1.7.1 Environmental hazards include contamination to the surrounding environment and "physical" elements which may contribute to accidents. The main concern is contamination to the environment caused from radiological materials.

1.7.2 Due to the location of the facility and the nature of the work extreme high and low temperatures are expected. Personnel are trained to identify symptoms of heat exhaustion and heat stroke in accordance with CD-P280.023, "Heat and Cold Stress." If unexpected extreme temperatures are encountered, NSTec Industrial Hygiene is notified for assistance.

1.7.3 NSTec has established a lightning proximity threshold boundary (minimum 10 miles) that allows sufficient time to halt work and place personnel and vulnerable assets or assemblies in a lightning safe configuration. Verify and monitor current and forecast weather conditions with Air Resources Laboratory, Special Operations and Research Division (ARL/SORD) prior to the start of facility or project activities unacceptably impacted by potential lightning hazards (ARL/SORDS Weather Forecaster at 702-295-1255). Pay attention to early signs of thunderstorms: high winds, dark clouds, rain, and distant thunder or lightning. Watch for thundercloud formation and, when threatened or alerted by the OCC for NTS and North Las Vegas locations, direct the workers to take shelter. Personnel are trained to identify hazardous weather conditions in accordance with CD-P280.024, "Inclement Weather Protection (Severe Weather)"

1.8 General Safety Requirements

1.8.1 The following is a list of the general requirements necessary to safely accomplish operations performed at the RWMC:

A. Perform walk downs of intended operations
B. Perform pre-job briefs of operations to understand the hazards which may be encountered
C. Perform post-job briefs to incorporate suggestions to improve safety
D. Wear appropriate PPE
E. Keep the work area clean
F. Inspect tools prior to use; do not use if damaged

G. Monitor yourself and coworkers for signs of heat/cold stress
H. Work under the stipulations of a Job Hazard Analysis (JHA), if applicable
I. Work under the stipulations of a RWP, if applicable
J. Follow the requirements of the DOE/NV/25946--801 for operations involving radiological material

1.9 Specific Administrative Controls

1.9.1 Specific Administrative Controls (SACs) are identified in Documented Safety Analysis DSA-2151.100, "Documented Safety Analysis for the Area 3 & 5 Radioactive Waste Facilities" or its addendum as being safety controls because of their defense-in-depth and worker safety roles in preventing and mitigating postulated accident scenarios at the RWMC. These SACs are implemented in facility specific operating procedures to ensure worker health and safety.

1.10 Programmatic Administrative Controls

1.10.1 The following Programmatic Administrative Controls (PACs) described in DSA-2151.100 or its addendum are administrative programs that ensure safe operation within the Area 5 RWMC. The following programs are established, implemented, and maintained in accordance with DOE and National Nuclear Security Administration (NNSA) Orders, as applicable:

A. Fire Protection Program
B. Waste Handling and Storage Program
C. Configuration Management Program
D. Emergency Response Program
E. Radiation Protection Program
F. Nuclear Criticality Safety Program
G. Hazardous Material Protection Program
H. Conduct of Operations Program
I. Maintenance Program
J. Quality Assurance Program
K. Training
L. Radioactive Inventory Control Program

2.0 EMPLOYEE TRAINING

2.1 General

2.1.1 Managers, supervisors, and employees working at the RWMC, who face possible exposure to hazardous substances or health and safety hazards, are trained before being permitted to engage in operations that could expose them or others to said hazards.

2.1.2 Employees are not permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.

2.1.3 The following training elements are covered for personnel directly handing waste or waste containers and/or processing hazardous waste:

A. Radioactive Waste Operations General Employee Training (RWO GET)
B. DSA/ Technical Safety Requirements (TSR) training for the area to be entered
C. Conduct of Operations training
D. Radiological Worker II training
E. Forty-hour Hazardous Waste Site General Worker training and subsequent annual 8-hour refresher.
F. RCRA training.

2.1.4 The following training elements are required for personnel requiring unescorted access to Area 5:

A. General Employee Radiological Training
B. Radioactive Waste Operations General Employee Training (RWO GET)
C. Conduct of Operations training

2.1.5 In addition to the above requirements, the following items are required of craft personnel to perform work at NTS:

A. A journeymen's card from an apprenticeship program recognized by the employer or equivalent training recognized by the employer.
B. Minimum of 3 years experience in this specific craft.
C. Craft apprentice under craft specific control

3.0 PERSONAL PROTECTIVE EQUIPMENT

3.1 Representatives from the Radiological Control Department (RCD), NSTec Safety, and Industrial Health determine the necessary PPE for control of hazards to operations personnel. Eye protection, gloves, foot protection, hearing protection, hard hats, and any other necessary protective apparel are provided.

3.1.1 PPE Selection

A. PPE is selected and used which will protect employees from the hazards and potential hazards they are likely to encounter, as identified during the site characterization and analysis.

B. PPE selection is based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site.

C. The level of protection provided by PPE selection will be increased when additional information on site conditions indicates that increased protection is necessary to reduce employee exposures below permissible exposure limits and published exposure levels for hazardous substances and health hazards.

D. PPE shall be selected and used to meet the requirements of Title 29 Code of Federal Regulations (CFR) Part 1910, "Occupational Safety and Health Standards," Subpart I, "Personal Protective Equipment," and additional requirements specified in this section.

E. Any radiological operation that requires PPE and/or respiratory protection shall be performed under an approved RWP. RWPs will be implemented in accordance with DOE/NV/25946--801. RWPs are generated by the Health Physics Supervisor (HP SUPV) who works closely with the work group and approved by the RCD. Line management also concurs on the RWP. Additional work documents may be required to perform work. The RWP for the specific operation specifies the required PPE.

F. Waste approved for disposal at the Area 5 RWMC must meet specific requirements in the NTS WAC. These requirements include generator information-certifications, waste content and characterization, and waste packaging information. The WAC and generator supplied information are used to determine required employee exposure controls such as the necessary PPE and external monitoring equipment for shipment receipt, off-loading, disposal, and/or storage.

4.0 MEDICAL SURVEILLANCE

4.1 The NSTec Medical Surveillance Program is defined in PLN-1025, "Occupational Medicine Program," which meets the requirements of 29 CFR 1910.120. This program recognizes and evaluates potential health effects caused by exposure to various materials an employee may encounter at the NTS facility. The program assists in early detection of occupational and non-occupational illnesses.

4.2 NSTec Medical Surveillance Program requirements include an initial pre-employment health examination that establishes baseline personal health data, periodic health examinations, a termination health examination, and record keeping.

4.3 Routine medical surveillance for particular chemicals is not conducted because there are no routine exposures to hazardous chemicals. Monitoring is performed during potential exposure periods. In addition, blood tests are performed annually on personnel classified as Hazardous Waste Workers.

5.0 AIR MONITORING, PERSONNEL MONITORING, AND ENVIRONMENTAL SAMPLING TECHNIQUES

5.1 NSTec Environmental Technical Services (ETS) performs air and exposure monitoring for environmental surveillance at various NTS locations. Samples are collected by ETS from strategic locations within the site to obtain information relative to ambient air conditions. The environmental surveillance program monitors the NTS for airborne radioactive particles, radioactive gases, and tritiated water vapor samples.

5.2 Area 5 RWMC environmental monitoring is conducted as part of the Routine Radiological Environmental Monitoring Plan. NTS air and groundwater monitoring results are reported to NNSA/NSO in the Annual Site Environmental Impact Report, the National Emissions Standard for Hazardous Air Pollutants, and the Annual Groundwater Monitoring Report.

5.3 Continuously operated samplers are positioned around the Area 5 RWMC. The samples collected are analyzed for gross alpha, gross beta, plutonium, americium, gamma radiation, and tritium. Thermoluminescent dosimeters are placed at pre-determined locations around the perimeter of the Area 5 RWMC to monitor environmental gamma exposure.

5.4 Radioactive airborne concentrations, including Radon, at the Area 5 RWMC are monitored continuously. Additional measurements of Radon flux through operational waste covers are also conducted on the cover of U-3ax/bl. The performance objective for the operational waste cover is 20 $pCi/m^2/s$; the actual Radon flux is well below this performance objective.

6.0 SITE CONTROL

6.1 Appropriate site control procedures are implemented to control employee exposure to hazardous substances before clean-up work begins.

6.2 A site control program for protecting employees will be developed during the planning stages of a hazardous waste clean-up operation, and modified as necessary as new information becomes available.

6.2.1 The site control program will include the following, as a minimum:

- A site map
- Site work zones
- The use of a “two-man rule”

- Site communications including alerting means for emergencies
- The standard operating procedures or safe work practices
- Identification of the nearest medical assistance

Where these requirements are covered elsewhere they will not be repeated.

7.0 DECONTAMINATION PROCEDURES

7.1 Equipment from the Area 5 RWMC will be radiologically decontaminated in accordance with NSTec performance documents. Radiation survey instruments and swipe samples will be used to identify the location of any remaining contamination. Equipment contaminated with hazardous constituents will be decontaminated using appropriate decontamination methods and hazardous waste regulations. Decontaminated equipment will be disposed of in accordance with disposal site WAC. Steam cleaning and washing will be performed such that wastewater is confined and managed according to ALARA principles and appropriate regulations, and NTS and NSTec performance documents.

7.2 A variety of personnel radiological decontamination units can be made available for use at the Area 5 RWMC. There is an emergency shower located in the Controlled Area Access Building for use in the event of a personnel contamination incident. Mobile trailers containing offices, PPE, change rooms, and radiological decontamination capabilities are deployed to areas of potential contamination, as needed.

7.3 In the extremely unlikely event that soil under any of the Area 5 RWMC facilities is discovered to be contaminated with radioactivity or hazardous wastes, the contaminated soil will be removed in accordance with an approved cleanup or closure plan. The contaminated soil will be disposed according to DOE, hazardous waste regulations.

8.0 EMERGENCY RESPONSE PLAN

8.1 RWMC-EPIP-01, in conjunction with Company Directive CD-2120.019, “Emergency Preparedness and Response,” provides guidance in the response to incidents and emergencies at Area 5 RWMC. The planning basis for the EPIP is based on the following potential events, which, at a minimum, would include the protective actions of shelter in place and/or evacuation. These events are as follows: natural phenomena (earthquake, flood, or wind storm), law enforcement-type events (civil disorder/riot, or sabotage/malevolent acts), accidents (aircraft, chemical, biological, and/or hazardous materials), fires/explosions, suspicious mail/suspicious packages, bomb threats, or power failures.

9.0 CONFINED SPACE

9.1 CD-P280.038, “Confined Space Entry” defines a confined space and the requirements for entry into a confined space. The following rules apply to confined space:

9.1.1 Confined spaces include, but are not limited to: tanks, pits, voids, vaults, elevator pits, and cooling towers. CD-P280.038 applies to excavations, particularly those over landfills and waste sites with known, unknown, and unclassified chemical hazards.

9.1.2 Subcontractors performing work in confined spaces must be qualified according to CD-P280.038, or have an accepted confined space program which meets the requirements of Title 29 Code of Federal Regulations Part 1910.146, "Permit-Required Confined Spaces." Services Subcontract, Exhibit E, Environmental, Safety & Health, and Security Requirements will define these requirements and options.

10.0 SPILL CONTAINMENT PROGRAM

10.1 A spill or material release may occur during container loading/unloading, movement, and storage at the Area 5 RWMC. The initial response to any spill would be to protect human health and safety. Identification, containment, treatment, and disposal will be the secondary response. Actions in response to controlling and reporting spills and materials releases shall be consistent with the provisions outlined in CD-P270.009, "Spill Reporting and Control."

Exhibit 3

Waste Acceptance Criteria for Area 5 Asbestiform Low-Level Solid Waste Disposal Site

September 2010
Rev. 1

Prepared for the

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office

by

National Security Technologies, LLC

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Acronyms

ALLW	Asbestiform Low-Level Waste
CFR	Code of Federal Regulations
DOE	Department of Energy
DOT	U.S. Department of Transportation
EPA	Environmental Protection Agency
LLHB	Low-Level Radioactive Hydrocarbon-Burdened
LLW	Low Level Waste
NAC	Nevada Administrative Code
NDEP/BFF	Nevada Division of Environmental Protection Bureau of Federal Facilities
NNSA/NSO	U.S. Department of Energy National Nuclear Security Administration Nevada Site
NNSS	Nevada National Security Site
NNSSWAC	Nevada National Security Site Waste Acceptance Criteria
NSTec	National Security Technologies, LLC
PCBs	Polychlorinated Biphenyls
PK	Process Knowledge
RACM	Regulated Asbestos Containing Material
RCRA	Resource Conservation and Recovery Act
RWAP	Radioactive Waste Acceptance Program
RWMS	Radioactive Waste Management Site
RWO	Radioactive Waste Operations
SAPs	Sampling and Analysis Plan
SWDS	Solid Waste Disposal Site
TPH	Total Petroleum Hydrocarbons
TRU	Transuranic
TSCA	Toxic Substance Control Act
WMP	Waste Management Program

1.0 Area 9 U10c Solid Waste Disposal Site Acceptance Criteria

1.1 Summary

The site will be used for the disposal of regulated Asbestiform Low-Level Waste (ALLW), small quantities of low-level radioactive hydrocarbon-burdened (LLHB) media and debris, Low Level Waste (LLW), LLW that contains Polychlorinated Biphenyl (PCB) Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water, and small quantities of LLHB demolition and construction waste (hereafter called permissible waste). Waste containing free liquids, or waste that is regulated as hazardous waste under the Resource Conservation and Recovery Act (RCRA) or state-of-generation hazardous waste regulations, will not be accepted for disposal at the site. The only waste regulated under the Toxic Substances Control Act (TSCA) that will be accepted at the disposal site is regulated asbestos-containing materials (RACM). The term asbestiform is used throughout this document to describe this waste. Other TSCA waste (i.e., polychlorinated biphenyls [PCBs]) will not be accepted for disposal at the Solid Waste Disposal Site (SWDS).

The disposal site will be used as a depository of permissible waste generated both on site and off site. All generators designated by National Nuclear Security Administration Nevada Site Office (NNSA/NSO) will be eligible to dispose regulated ALLW at the ALLW Disposal Site in accordance with the U.S. Department of Energy, Nevada Operations Office (DOE/NV) 325, Nevada National Security Site Waste Acceptance Criteria (NNSSWAC, current revision). Approval will be given by NNSA/NSO to generators that have successfully demonstrated through process knowledge (PK) and/or sampling and analysis that the waste is low-level, contains asbestiform material, and does not contain prohibited waste materials. Each waste stream will be approved through the Radioactive Waste Acceptance Program (RWAP), which ensures that the waste meets acceptance requirements outlined in the Nevada National Security Site (NNSS) Class III Permit and the NNSSWAC.

The SWDS will accept:

- Regulated ALLW that is generated by asbestos abatement programs administered by state or federal agencies pursuant to the TSCA.
- Regulated asbestiform low-level legacy waste.
- NNSA/NSO-generated LLHB media and debris and LLHB demolition and construction waste. This material may or may not be contaminated with regulated asbestiform material.
- LLW that meets the waste acceptance criteria in Section 6.2.

- LLW that meets the waste acceptance criteria in Section 6.2 and contains PCB Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water.
- Other waste on a case-by-case basis, with concurrence from Nevada Division of Environmental Protection, Bureau of Federal Facilities (NDEP/BFF).

Regulated ALLW will be generated from Department Of Energy (DOE) operations that encompass Defense Programs, Waste Management, Environmental Restoration, or Technology Development programs. Other sources generating regulated ALLW may be appraised on a case-by-case basis, with concurrence obtained from the NDEP/BFF before the waste may be accepted.

1.2 Waste Acceptance Criteria

The NNSSWAC will be used as the governing document for waste acceptance criteria (also see NSTec Plan entitled "Management Plan for the Disposal of Low-Level Waste with Regulated Asbestos Waste", PLN-1013). Requirements stipulated in this document meet state of Nevada requirements to detect and prevent disposal of hazardous waste or PCB wastes, and restrictions on free liquids. The State of Nevada has granted NNSA/NSO an exclusion from the requirement for onsite random inspections for incoming loads (NAC 444.6665 [1] [a] & [b], “Operating Criteria: Program for Detecting and Preventing Disposal of Regulated Hazardous Wastes and PCB Waste”). The RWAP conducts random inspections and verification of waste acceptance prior to shipment to the NNSS. If and when a generator meets the RWAP approval requirements as described in the NNSSWAC, the NNSA/NSO Assistant Manager for Environmental Management is responsible for providing proper written documentation to the generator allowing the waste to be sent to the site for final disposal.

Prior to accepting waste, disposal site operators will verify that the waste received at the site is from an approved generator. Generator compliance with the NNSSWAC will ensure that the following are documented:

- The absence of prohibited materials
- The waste characterization information that identifies each load by type of permissible waste
- The process by which waste was characterized (PK, sampling and analysis, etc.)
- Identification of waste source by location (Area 2, Area 25 - Yucca Mountain Project Site Characterization Office, Sandia National Laboratories, Albuquerque, etc.)

Load verification information will be prepared by the waste generator and accepted at the disposal site prior to the waste being disposed. Inadequate documentation or waste characterization is cause to refuse entry and disposal of any load of solid waste.

1.2.1 Waste Characteristics

Permissible ALLW may include, but is not limited to, inert low-level materials known to contain or be contaminated with RACM. RACM includes:

- Friable asbestos material
- Category I nonfriable asbestos-containing material (ACM) that has become friable
- Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading
- Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by Title 40 Code of Federal Regulations (CFR) 61, Subpart M, "National Emission Standards for Asbestos."

Permissible regulated ALLW may include, but is not limited to, the following materials:

- Asphalt
- Ductwork
- Glove box frames
- Insulation
- Metal
- Wood
- Paper
- Floor tile
- Personal protective equipment
- Metal or plastic pipe
- Rocks
- Soil
- Transite
- Roofing materials
- Miscellaneous building materials

Permissible LLHB waste includes LLHB media and debris and LLHB demolition and construction waste. This material may or may not be contaminated with regulated asbestiform material, but must be low-level. To be considered hydrocarbon-burdened, the material must exceed 100 milligrams/kilogram (mg/kg) of Total Petroleum Hydrocarbons (TPH) using U.S. Environmental Protection Agency (EPA) Method 8015, modified. Permissible LLW must meet the waste acceptance criteria in Section 6.2. Permissible LLW may also contain PCB Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms of PCB per liter of water.

NNSA/NSO shall act as the solid waste management authority in meeting the applicable requirements of Nevada Administrative Code (NAC) 444.965–444.976, “Transportation and Disposal,” (excluding NAC 444.974[2]), "Disposal of Asbestos."

1.2.2 Prohibited Wastes

The following are specifically prohibited from disposal:

- High-level radioactive waste
- Transuranic (TRU) waste (alpha-emitting TRU nuclides with half-lives greater than 20 years and a concentration greater than 100 nanoCuries/gram [nCi/g])
- Radioactive waste from DOE or commercial operations that produce nuclear power for public consumption
- Sewage pumpings and sludge
- Septic tank pumpings and sludge
- Hazardous waste
- Medical waste
- Waste containing free liquids
- Tires
- Other materials prohibited by law

1.2.3 Special Wastes

NNSA/NSO-generated LLHB media and debris and LLHB demolition and construction waste may or may not be contaminated with regulated asbestiform material. To be considered hydrocarbon-burdened, the material must exceed 100 mg/kg of TPH using EPA Method 8015, modified. Any material not exceeding 100 mg/kg of TPH will not be considered hydrocarbon-burdened.

1.3 Packaging and Shipment Requirements

Prior to the packaging and shipping, the generator will ensure that RACM will be wetted with a water and surfactant mixture and packaged in one of the following:

- A plastic bag or equivalent that is not less than 6 mils (thousandths of an inch) thick and sealed so that it is airtight
- A combination of plastic bags that equal at least 6 mils in thickness
- A container that is lined with plastic.

If free liquid is present, absorbent will be added to ensure compliance with the free liquids criteria (as defined in Section 6.5.4). Sharp edges and corners in the package will be padded or protected to prevent damage to the plastic bag during handling, shipping, and disposal.

RACM (packaged as stated above) and LLHB waste will be packaged inside steel drums, lined wooden boxes, steel boxes, or Sealand® containers. Package specifications ensure that waste packages will not emit particulate matter and will not be crushed during stacking and covering operations. These specifications exceed the standards for asbestos packaging identified in NAC 444.971., "Standards for Handling and Transportation." Each shipment of LLHB waste shall be accompanied by a bill of lading or shipping manifest.

Each container used to dispose RACM will bear a label that displays one of the following statements.

<table>
<tr><td colspan="2">(1) CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH</td></tr>
<tr><td>(2) CAUTION
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
MAY CAUSE SERIOUS BODILY HARM</td><td>(3) DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD</td></tr>
</table>

The transporter is responsible for transporting waste in a manner that will prevent the airborne release of waste material. It is the responsibility of the generator and transporter to comply with NAC 444.972(1), "Approval Required for Transportation," and U.S. Department of Transportation (DOT) requirements for the shipment of waste material to the NNSS.

Generators will ensure that transporters of regulated ALLW, LLW, LLW containing PCBs, and LLHB waste meet the requirements of DOE Order 460.2, "Departmental Materials Transportation and Packaging Management," which specifies that transporters of hazardous materials must pass the DOE Motor Carrier Evaluation Program.

Each generator shipping-regulated ALLW to the NNSS shall complete the Asbestiform Shipment Notification (Figure 4), or equivalent, for each shipment number and forward it to NNSA/NSO, no later than seven days in advance of the shipment's arrival at NNSS. The Asbestiform Shipment Notification is for RACM only. LLW, LLW containing PCBs, and LLHB waste will follow the standard requirements for LLW as described in the NNSSWAC. NNSA/NSO will sign the notification and forward a copy to the NDEP/BFF

Las Vegas office and to both the NSTec Waste Management Program offices in Las Vegas and at the Area 5 Radioactive Waste Management Site (RWMS) no later than four days in advance of arrival at the NNSS. A signed copy of the notification will be returned immediately to the generator indicating authorization of shipment. This process will fulfill the requirements of NAC 444.972.2, "Submission of Information to Obtain Approval"; and NAC 444.974, "Notification Required Before Delivery; Disposal at Site Other Than Class I Disposal Site.'"

NSTec shall act as the solid waste management authority in satisfying the requirements of NAC 444.973," Maintenance and Filing of Records Regarding Transportation." Each waste shipment of regulated ALLW shall be accompanied by a bill of lading or shipping manifest and a copy of the Asbestiform Shipment Notification signed by NNSA/NSO Waste Management Project. This documentation will be retained by NSTec (see Section 9.9). The transporter or generator will not be required to submit a copy of the Asbestiform Shipment Notification to the state of Nevada.

1.4 Shipment Inspection and Refusal

NSTec Waste Management Program (WMP)/Radioactive Waste Operations (RWO) personnel shall inspect each load at the Area 5 RWMS to verify external packaging compliance and shipping documentation. The following examples are cause for refusing delivery of the regulated ALLW, LLW, LLW containing PCBs and LLHB waste for disposal at the Area 5 RWMS:

- Required paperwork not available or incomplete
- Labels do not meet the feral or state requirements
- Records or observations indicate that unauthorized/prohibited materials are in the shipment

These discrepancies will result in all, or portions, of the shipment being set aside in the staging area until the identified issue is resolved with the waste generator, and corrective action is taken. If mitigation action is neither satisfactory nor timely (e.g., within 45 days after receipt), wastes may be returned to the generator. This decision will be made by the appropriate NNSA/NSO and contractor Project Managers, and will take into consideration such items as DOT compliance, hazards involved with mitigation, and the safety of personnel. If the waste is not returned to the generator, corrective action will take place at the NNSS, and the generator will be billed accordingly.

1.5 Disposal Procedure

The SWDS, a separate area within the Area 5 RWMS, has been designated for the disposal of regulated ALLW and NNSA/NSO-generated LLHB waste. The following practices will be used when handling and disposing of regulated ALLW or LLHB waste and LLW or LLW containing PCBs in SWDS:

- Each package or container will be handled in a manner that minimizes breakage or breaching
- Vehicles that contained a package or container that leaked will be decontaminated if determined by RWO personnel to be necessary.

1.5.1 Hazardous Constituents

Waste will not be accepted for disposal if it is determined that the material contains a RCRA-listed constituent, displays a RCRA characteristic, or if it qualifies as being hazardous under state-of-generation or state of Nevada hazardous waste regulations.

1.5.2 TSCA Constituents

Permissible LLW may also contain PCB Bulk Product Waste greater than 50 ppm that leaches at a rate of less than 10 micrograms per liter of water.

1.5.3 Radioactive Constituents

No high-level waste, TRU waste (alpha-emitting TRU nuclides with half-lives greater than 20 years and a concentration greater than 100 nCi/g), or waste from DOE or commercial operations that produce nuclear power for public consumption will be accepted.

1.5.4 Free Liquids

Waste that contains free liquids greater than 1 percent of the volume of the waste when the waste is in a disposal container, or 0.5 percent of the volume of the waste processed to a solidified form will not be accepted at the disposal site. Sufficient sorbing material will be mixed with the waste to ensure that free liquids do not exist before being accepted at the disposal site.

1.6 Waste Characterization

Waste characterization is the process of identifying the chemical and physical properties of the waste material. It will be used to determine that permissible waste meets waste acceptance criteria and to ensure that it will not create an environmental hazard or threaten the health of the general public. Waste characterization will be achieved through PK, sampling and analysis, or a combination of these methods.

1.6.1 Process Knowledge

Generators may be able to adequately characterize waste by their familiarity and experience with the process by which the waste was generated. PK 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 affected the processed material by adding, removing, producing, depleting, or neutralizing the contaminants in process ingredients, by-products, and/or finished products. Material 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 characterized.

PK may also be derived through the repeated analyses of the same event. From repeated sampling and analyses, waste may be characterized without further analysis.

1.6.2 Sampling and Analysis

If the generator cannot accurately characterize the waste using PK, it is the responsibility of generator personnel to prepare Sampling and Analysis Plans (SAPs) for all suspected permissible waste, including waste that appears to be extraordinary or unfamiliar. Using SAPs, generator personnel can properly characterize each waste for RCRA analytes, RCRA characteristics, PCBs, or radioactivity.

Exhibit 4

Closure/Post-Closure Plan for Area 5 Asbestiform Low-Level Solid Waste Disposal Site

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Prepared for the

U.S. Department of Energy
National Nuclear Security Administration
Nevada Site Office

by

National Security Technologies, LLC

Closure/Post-Closure Plan for Area 5 Asbestiform Low-Level Solid Waste Disposal Site

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September 2010

Closure/Post-Closure Plan for Area 5 Asbestiform Low-Level Solid Waste Disposal Site

Closure Plan

Nevada Division of Environmental Protection Bureau of Federal Facilities (NDEP/BFF) will be notified in writing of an 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 180 days after beginning the closure (assuming funding is immediately available). It is anticipated that the disposal site will be used until permissible waste reaches an elevation of approximately 5 m (16 ft) above the invert of each cell. The final design will incorporate a cap configuration that will have a slope of not less than 3 percent away from the center and be graded along the sides to drain surface water away from the disposal site.

The cover will consist of an infiltration layer containing a minimum 0.62 m (24 in) of earthen material having a capability that is less than or equal to the permeability of the natural subsoils. According to Nevada Administrative Code (NAC) 444.6891, "Requirements for Design and Construction of System for Final Cover," soil for the infiltration layer must not have a permeability greater than 1 x 10^{-5} centimeters/second. Native soils for the area may require amending to ensure that they meet this performance standard. Geotechnical measurements will guarantee that the infiltration layer has met the specification requirements before completion of the final cover. An erosion layer, consisting of at least 15.2 cm (6 in) of native soil, will be placed on the infiltration layer. The erosion layer will be capable of sustaining the growth of native plants to stabilize the surface and reduce wind and water erosion.

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

The closure plan will address all steps that will be taken to complete closure. This information will consist of a plan discussing the cover specifications; an estimate of the total volume of waste placed in the disposal site during its lifetime; decommissioning of any equipment or structures; and the installation of water, vadose zone, and/or gas monitoring devices, as required. The plan will meet all applicable regulations and will follow all relevant and appropriate regulations to the extent possible.

Post-Closure Plan

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 effect the integrity of the final cover;
- Demonstrate at closure that any leachate is present or demonstrate that any leachate does not pose a threat to public health and safety and the environment;
- Evaluate the need to conduct groundwater monitoring, or demonstrate that any leachate does not pose a threat to public health and safety and the environment; and
- Evaluate the need to conduct gas monitoring, or demonstrate that any potential gas generation does not pose a threat to public health and safety and the environment.

The post-closure program will be conducted for a period of 30 years. However, the land manager/operator maintains 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 public health and safety and the environment.