

Application for a Permit Modification to SW532
Nevada National Security Site
Area 5 Asbestiform
Solid Waste Disposal Site

May 2018
Rev. 3

Prepared for the
U.S. Department of Energy, National Nuclear Security Administration
Nevada Field Office
by
Mission Support and Test Services, LLC

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Section I. Applicant Information

Owner: U.S. Department of Energy, National Nuclear Security Administration
Nevada Field Office (NNSA/NFO)
P.O. Box 98518
Las Vegas, NV 89193-8518

Authorized Agent: Scott A. Wade
Assistant Manager for Environmental Management and Senior Advisor

Operator: Mission Support and Test Service, LLC (MSTS)
P. O. Box 98521
Las Vegas, Nevada 89193-8521

Authorized Agent: Mark W. Martinez
President

Section II. Facility Information

Name: Area 5 Asbestiform Solid Waste Disposal Site (SWDS)

County: Nye County

Location: Nevada National Security Site (NNSS), Area 5 Radioactive Waste Management Site (RWMS)

NSO Coordinates: N 766,528 to N 767,200 by E 708,734 to E 708,893
(Nevada State Plane Grid – Central Zone, North American Datum, 1983)

This application is being submitted for a modification to permit SW532 for the Area 5 Asbestiform SWDS, a Class III SWDS located on the NNSS at the Area 5 RWMS. The NNSS is approximately 105 kilometers (km) (65 miles [mi]) northwest of Las Vegas, Nevada. NNSA/NFO is the federal lands management authority for the NNSS, and MSTS is the Management and Operations contractor. MSTS is the operator of all SWDSs on the NNSS. NNSA/NFO maintains separate contracts for 24-hour security services (armed patrol and access control), while the Nye County Sheriff's Office provides law enforcement support on the NNSS. The Area 5 RWMS is located near the eastern edge of the NNSS, approximately 26 km (16 mi) north of Mercury, Nevada (Figure 1). The Area 5 Asbestiform SWDS includes five existing landfill cells (Cells 19, 20, 22, 27, and 28). This application is being submitted to expand the Area 5 Asbestiform SWDS with the construction of two new cells (Cells 23 and 24). The cells would add approximately 80,908 cubic meters (m³) (105,823 cubic yards [yd³]) of net capacity to the Area 5 Asbestiform SWDS.

Section III. Supporting Information

Waste Characterization and Acceptance Criteria

Generators approved by NNSA/NFO can dispose regulated waste at the Area 5 Asbestiform SWDS in accordance with the Nevada National Security Site Waste Acceptance Criteria (NNSSWAC) (U.S. Department of Energy, Nevada Operations Office [DOE/NV]--325). Generators must demonstrate through process knowledge and/or sampling and analysis that their waste is an approved solid waste. Asbestiform low-level waste (LLW), polychlorinated biphenyl (PCB) bulk product LLW, and classified non-hazardous non-radioactive waste are accepted at the Area 5 Asbestiform SWDS. Each waste stream is approved through the Radioactive Waste Acceptance Program, which ensures that waste meets the acceptance requirements in the NNSSWAC. Solid waste is comingled in the disposal cells with LLW. LLW is not solid waste; therefore, it is excluded from regulation under permit SW532 and is subject only to the requirements of the NNSSWAC.

Design Information

The Area 5 Asbestiform SWDS includes multiple disposal cells within the Area 5 RWMS. The current Area 5 Asbestiform SWDS includes five landfill cells (Cells 19, 20, 22, 27, and 28), which are authorized for a total net capacity of approximately 200,344 m³ (262,040 yd³).

The Area 5 Asbestiform SWDS is being expanded with the construction of two new cells (Cells 23 and 24). The current Area 5 Asbestiform SWDS and proposed Cells 23 and 24 are shown in Figure 2. The proposed cells would add approximately 80,908 m³ (105,823 yd³) of net capacity, bringing the total net capacity to approximately 281,252 m³ (367,863 yd³). The dimensions, design capacity, net capacity (adjusted for cover and fill efficiency), and percent capacity remaining are listed in Table 1. The percent capacity remaining is the net capacity minus the volume of the approved solid waste and LLW received to date. The dimensions listed for each of the cells are the dimensions of the bottom of each cell.

Table 1. Dimensions and Capacities of Area 5 Asbestiform SWDS Landfill Cells

Cell	Dimensions	Design Capacity	Net Capacity (Design Capacity adjusted for cover and fill efficiency)	% Capacity Remaining
Cell 19	45.7 x 205.7 x 6.4 m (150 x 675 x 21 ft)	60,209 m ³ (78,750 yd ³)	32,932 m ³ (43,074 yd ³)	8%
Cell 20	91.4 x 205.7 x 6.4 m (300 x 675 x 21 ft)	120,417 m ³ (157,500 yd ³)	67,195 m ³ (87,888 yd ³)	1%
Cell 22	240.8 x 85.3 x 6.1 m (790 x 280 x 20 ft)	125,274 m ³ (163,852 yd ³)	74,663 m ³ (97,656 yd ³)	63%
Cell 23	243.8 x 38.7 x 6.1 m (800 x 127 x 20 ft)	57,540 m ³ (75,259 yd ³)	34,524 m ³ (45,156 yd ³)	100%
Cell 24	76.2 x 166.4 x 6.4 m (250 x 546 x 21 ft)	81,170 m ³ (106,167 yd ³)	46,383 m ³ (60,667 yd ³)	100%
Cell 27	143.3 x 48.8 x 3.7 m (470 x 160 x 12 ft)	25,553 m ³ (33,422 yd ³)	12,776 m ³ (16,711 yd ³)	26%
Cell 28	143.3 x 48.8 x 3.7 m (470 x 160 x 12 ft)	25,553 m ³ (33,422 yd ³)	12,776 m ³ (16,711 yd ³)	93%

The design criteria for construction of the Area 5 Asbestiform SWDS cells are the same regardless of the length, width, and depth of the cells. The maximum side slopes are designed using a 1:1 (horizontal:vertical) slope to maintain soil stability. The ramps are designed with an 8–10% grade, with 10% being the maximum for access by trucks and cranes. The Area 5 Asbestiform SWDS disposal cell layout and cell design drawings are provided in Figures 3 through 8.

Groundwater Monitoring Plan

According to Nevada Administrative Code (NAC) 444.733, the application for a permit to operate a Class III site must include a plan for groundwater monitoring, which is described in NAC 444.683. However, according to NAC 444.683, the State of Nevada may suspend groundwater monitoring requirements if it can be demonstrated that “there is no potential for migration of pollutants or contaminants from the site to waters of the State during the active life of the site, including the period for closure and post closure.” 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).

Three groundwater monitoring wells located outside the Area 5 RWMS are currently used to monitor groundwater for *Resource Conservation and Recovery Act* (RCRA) compliance and suffice for the Area 5 Asbestiform SWDS. An additional monitoring well for the Area 5 RWMS is planned as required under the RCRA permit. No additional monitoring activities are planned for the Area 5 Asbestiform SWDS. The details of these monitoring activities are located in the *RCRA Part B Permit Application for Waste Management Activities at the Nevada National Security Site*. In addition, the Area 5 Asbestiform SWDS receives less than 20 tons of waste per day based on a yearly average and is located in a region that receives significantly less than 62.5 centimeters (25 inches [in.]) of rain per year.

The major factors affecting leachate generation and migration into the groundwater are climate, geology, hydrogeology, water availability, and the condition of the waste before and after placement into the disposal site.

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.

The climate of Frenchman Flat is arid. The majority of precipitation falls during two seasons. The larger amount of precipitation occurs in the winter with a smaller amount of precipitation occurring in 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 Area 5 RWMS, is 126 millimeters (mm) (5.0 in.) per year. The average annual evapotranspiration at the Area 5 Asbestiform SWDS is 1,620 mm (64 in.). This is about 13 times the annual average precipitation.

The Area 5 Asbestiform SWDS is located in northern Frenchman Flat at the juncture of three coalescing alluvial piedmonts. 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. 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 million years, but before intrusion of basaltic dikes along some of the faults about 8.5 million years ago. 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.

Surface and subsurface geologic investigations were performed in northern Frenchman Flat as part of the site characterization activities for the Area 5 RWMS. Details of the run-on/run-off controls are included in the *RCRA Part B Permit Application for Waste Management Activities at the Nevada National Security Site*.

The groundwater systems beneath the NNSS have been summarized in a number of studies. One recurring observation in these studies is that accurate characterization of the NNSS groundwater flow systems is difficult because of limited data (few wells penetrate more than 33 meters (m) (100 feet [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. An overview of regional and local groundwater systems follows. Characterization of vadose zone properties and processes was drawn from investigations of Frenchman Flat and Yucca Flat.

Regional Groundwater System

The NNSS is located in 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 (km²) (15,800 square miles [mi²]) 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 m³ (70,000 acre-feet) of groundwater annually. Most of this flow moves through a thick sequence of Paleozoic carbonate rock extending through the subsurface of central and southeastern Nevada and is sometimes referred to as the central carbonate corridor.

The major water-bearing units of the NNSS have been divided 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, accurate overview of the subsurface hydrogeology.

The divisions of groundwater flow systems within the NNSS are based on the concept of subbasins, defined as the area that contributes water to a major surface discharge. Three principal subbasins have been identified within the NNSS 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 km² (4,000 mi²) and includes Yucca Flat and Frenchman Flat. Precipitation is believed to recharge the subbasin along its northern boundary at the Belted, Reveille, Timpahute, and Pahranaagat 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 per day (1 to 1,000 ft per 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 across the Area 5 RWMS ranges from approximately 235 to 272 m (771 to 892 ft) below ground 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 (2,408 ft). Depth to water is the least in the playa lake area (approximately 3.5 km [2 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. 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.

Closure/Post-Closure Plan

The 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 closure (assuming funding is immediately available).

The closure cover will be an engineered evapotranspirative (ET) cover, similar to the ET covers installed over the disposal units at the 92-Acre Area of the Area 5 RWMS, which included LLW units, retired mixed LLW units closed under the *Federal Facility Agreement and Consent Order*,

the Pit 3 Mixed Waste Disposal Unit under Permit NEV HW0101, and asbestiform units. The 92-Acre Area ET closure cover was accepted by NDEP/BFF, as it met the requirements of Title 40 Code of Federal Regulations Part 265, “Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities,” as adopted by NAC 444. The ET cover was designed to minimize infiltration and percolation, minimize wind and water erosion, provide long-term stability, and protect the groundwater.

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.

The post-closure program will:

- Maintain the integrity and effectiveness of the final cover
- Correct the effects of settlement, subsidence, erosion, or other circumstances that may affect the integrity of the final cover
- Demonstrate at closure that no 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
- 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.

Waste Acceptance Criteria

DOE/NV--325, Nevada National Security Site Waste Acceptance Criteria, current revision, contains the waste acceptance criteria for the Area 5 Asbestiform SWDS and can be accessed at the following link: https://www.nnss.gov/docs/docs_RWM/NNSSWAC_Nov%202016.pdf

Operation and Maintenance Plan

PLN-1124, Operation and Maintenance Plan for Area 5 Asbestos Solid Waste Disposal Cells, October 2015, is included as Exhibit 1.

Health and Safety Plan

PLN-1022, Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities, March 2014, is included as Exhibit 2.

Financial Assurance

NAC 444.733 for Class III sites requires documentation of financial assurance that refers to NAC 444.685. NAC 444.685 exempts entities of the federal government from the financial assurance requirements outlined in the State of Nevada solid waste disposal regulations.

Figure 1. Location of Area 5 Asbestiform SWDS

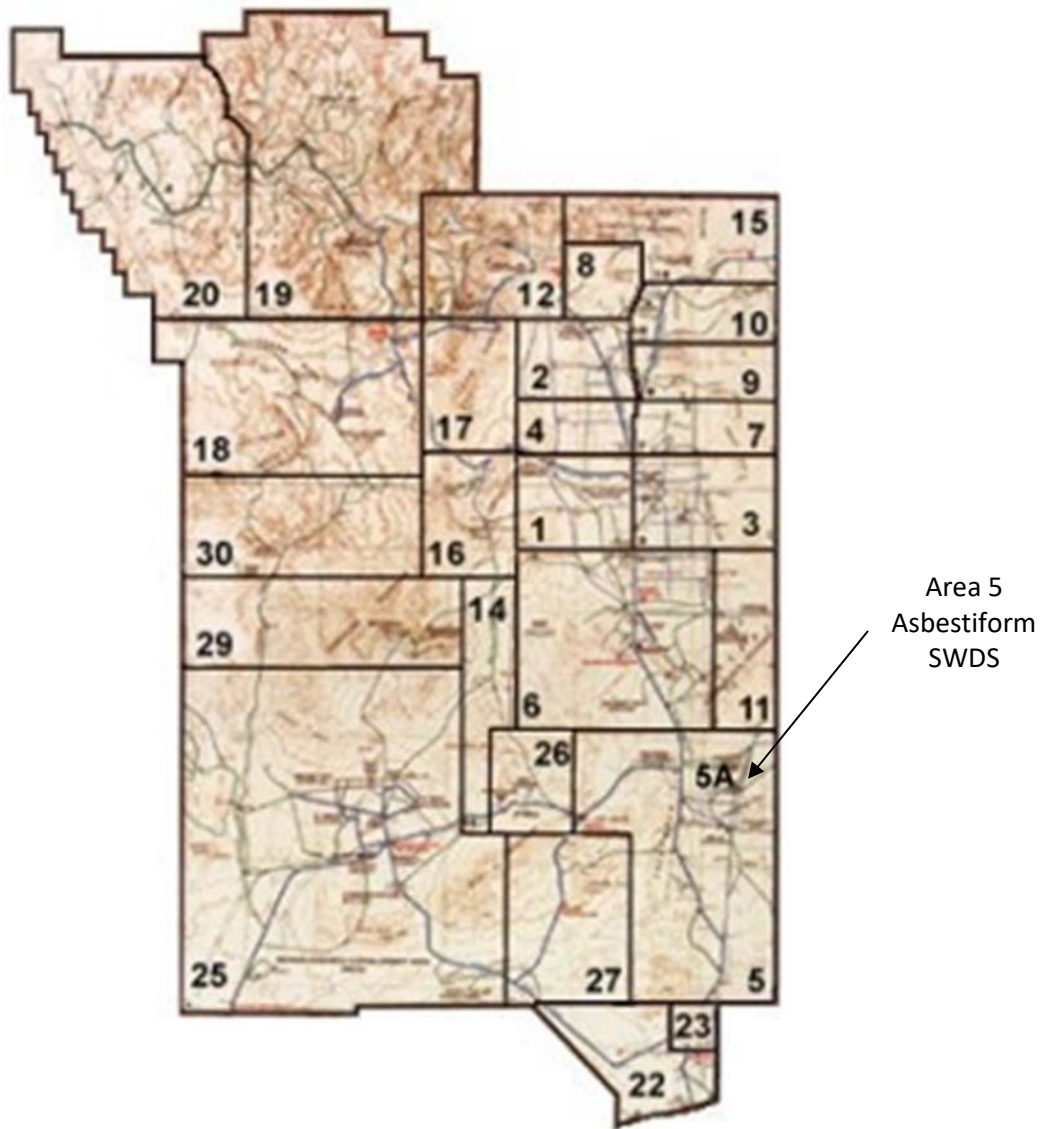
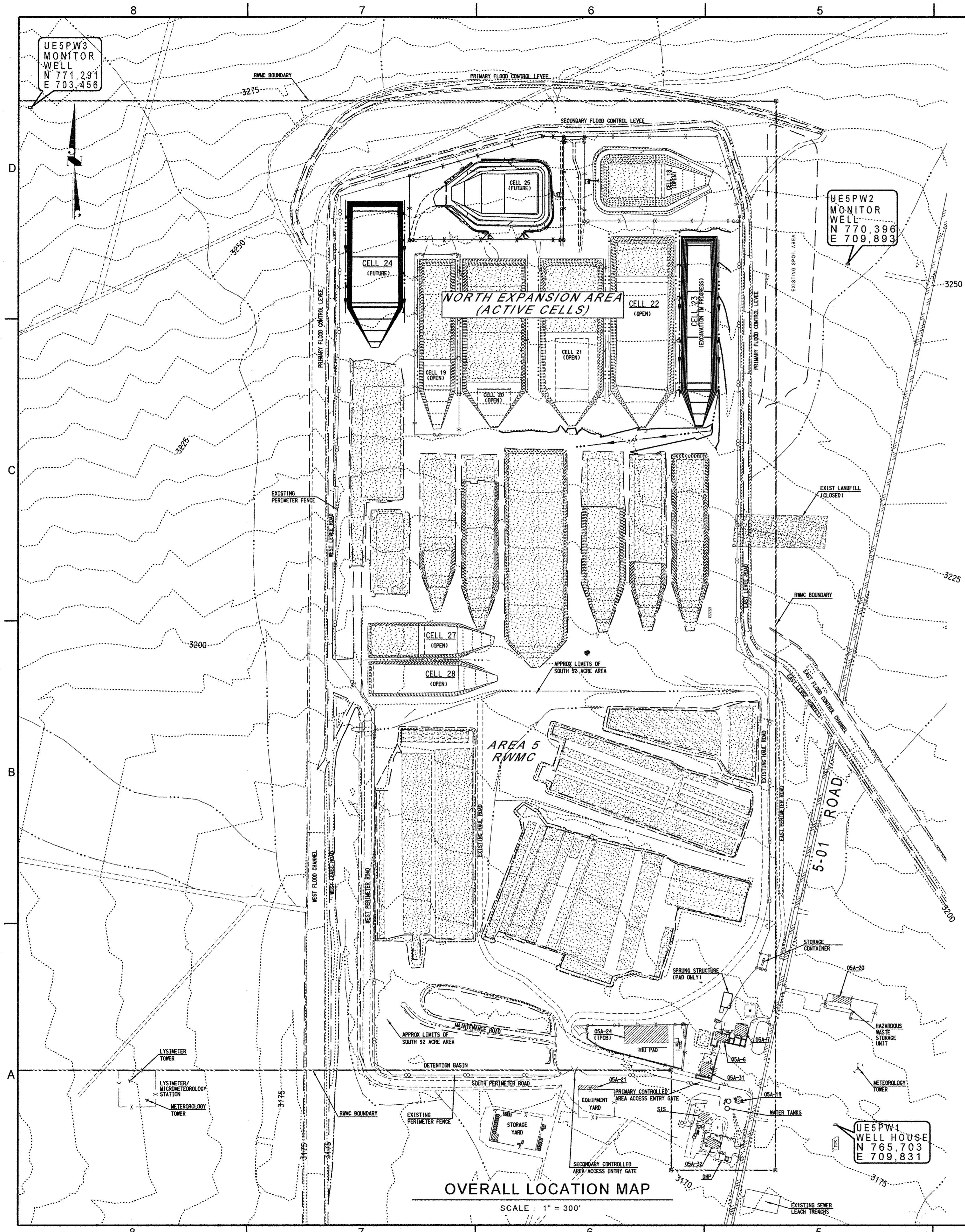
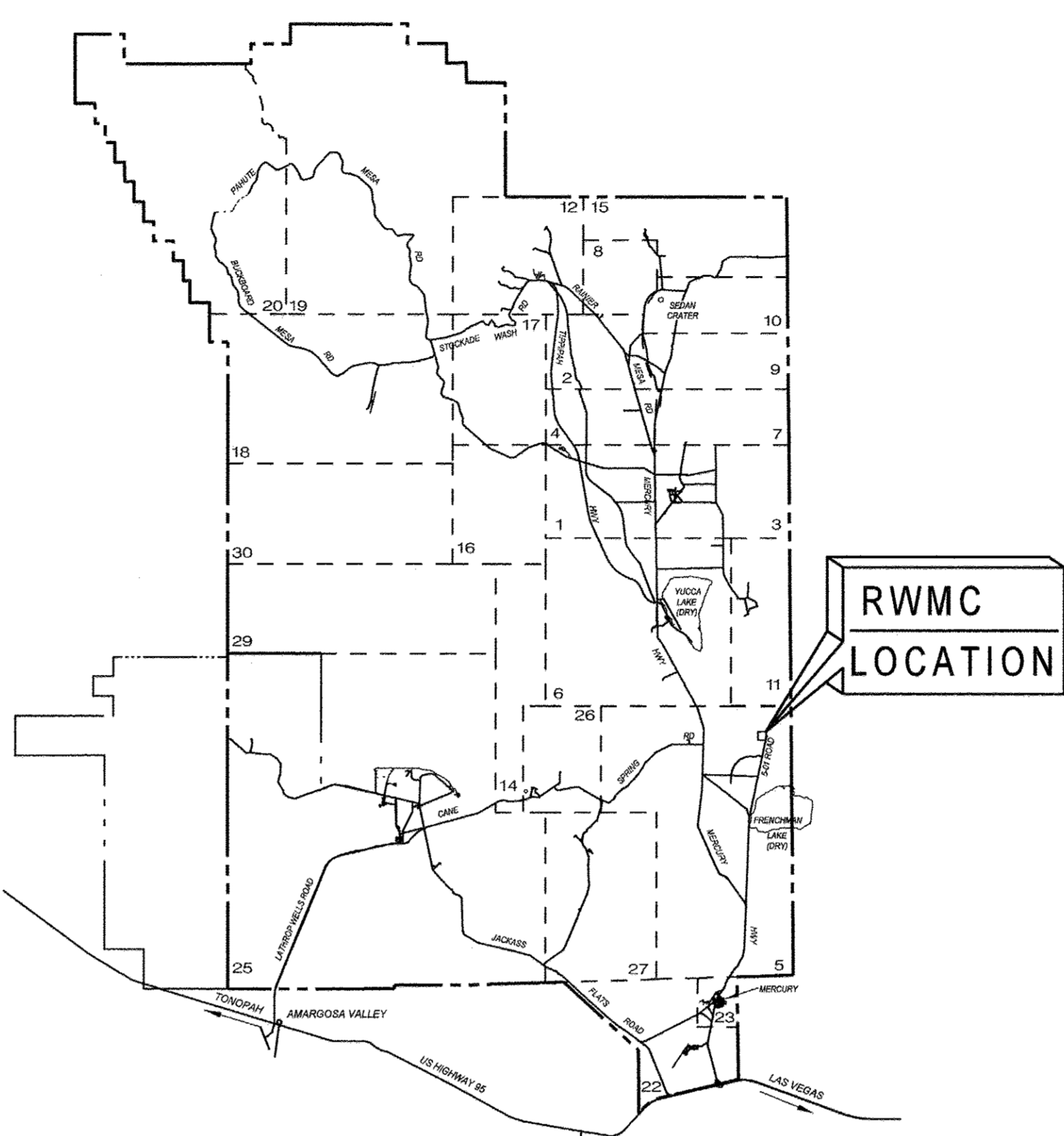


Figure 2. Area 5 Disposal Cell Layout



OVERALL LOCATION MAP
SCALE: 1" = 300'



VICINITY MAP
NEVADA NATIONAL SECURITY SITE
SCALE: NONE

ISSUED FOR CONSTRUCTION

UNCLASSIFIED
RM
R. M. W. N. S. E.
1 NOV 17

GS	NO.	DATE	REVISIONS	PREPARED	CHECKED	APPROVED	PROJ. MGR.	ACCEPTANCE
	<p>NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA FIELD OFFICE LAS VEGAS, NEVADA</p> <p>NEVADA NATIONAL SECURITY SITE AREA 05A RADIOACTIVE WASTE MANAGEMENT COMPLEX ASBESTOS WASTE DISPOSAL UNITS CELLS 22, 23, 24, 27, AND 28 LOCATION PLAN</p>							
PREPARED: <i>[Signature]</i> DATE: 11/17/17		CHECKED: <i>[Signature]</i> DATE: 11/17/17		APPROVED: <i>[Signature]</i> DATE: 11/17/17		PROJECT ENGINEER: <i>[Signature]</i> DATE: 11/17/17		ACCEPTANCE: <i>[Signature]</i> DATE: NA
National Security Technologies LLC Vision • Service • Partnership			ENGINEERING NO. 01892	DRAWING NUMBER 01892-C-1001		ORIGINAL SIGNATURES ON FILE		REVISION 0
NEVADA OPERATIONS P.O. BOX 98521 LAS VEGAS, NV 89193-8521								UNCLASSIFIED

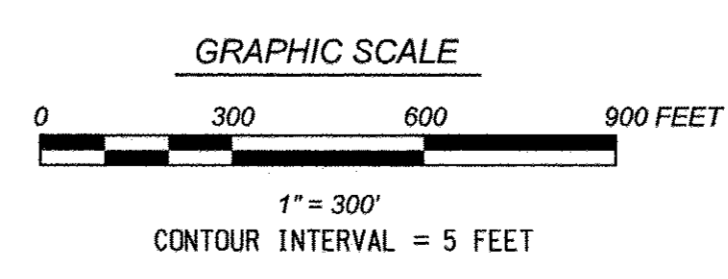
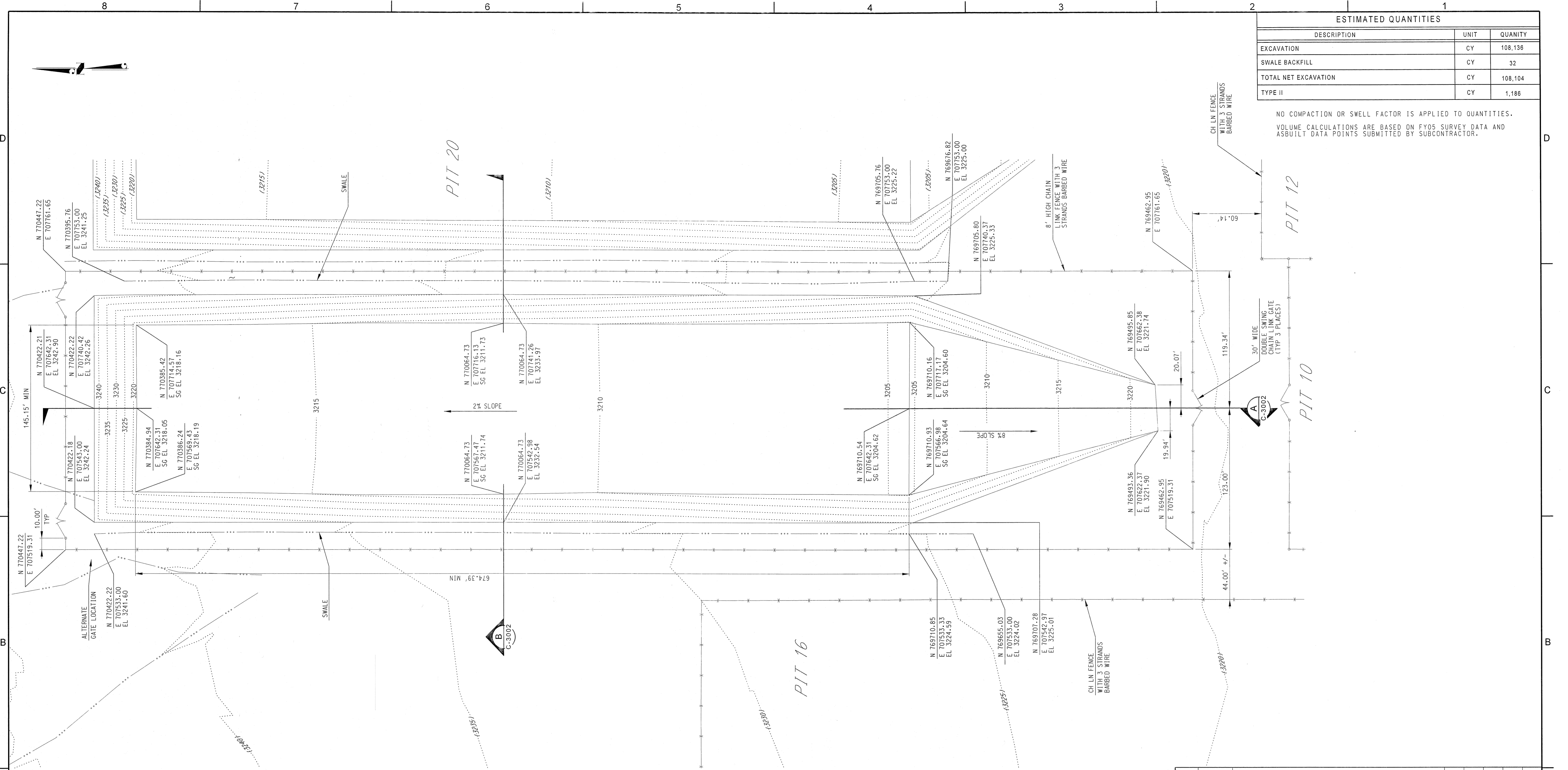


Figure 3. Cell 19 Grading Plan

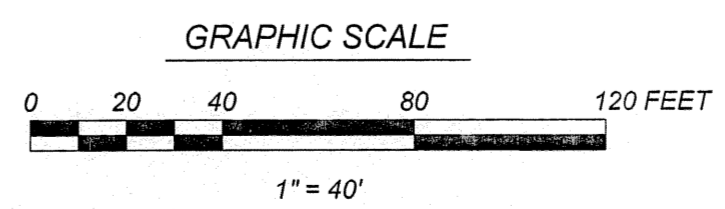


ESTIMATED QUANTITIES		
DESCRIPTION	UNIT	QUANTITY
EXCAVATION	CY	108,136
SWALE BACKFILL	CY	32
TOTAL NET EXCAVATION	CY	108,104
TYPE II	CY	1,186

NO COMPACTION OR SWELL FACTOR IS APPLIED TO QUANTITIES.
 VOLUME CALCULATIONS ARE BASED ON FY05 SURVEY DATA AND
 ASBUILT DATA POINTS SUBMITTED BY SUBCONTRACTOR.

GRADING PLAN

SCALE : 1" = 40'
 CONTOUR INTERVAL = 5'

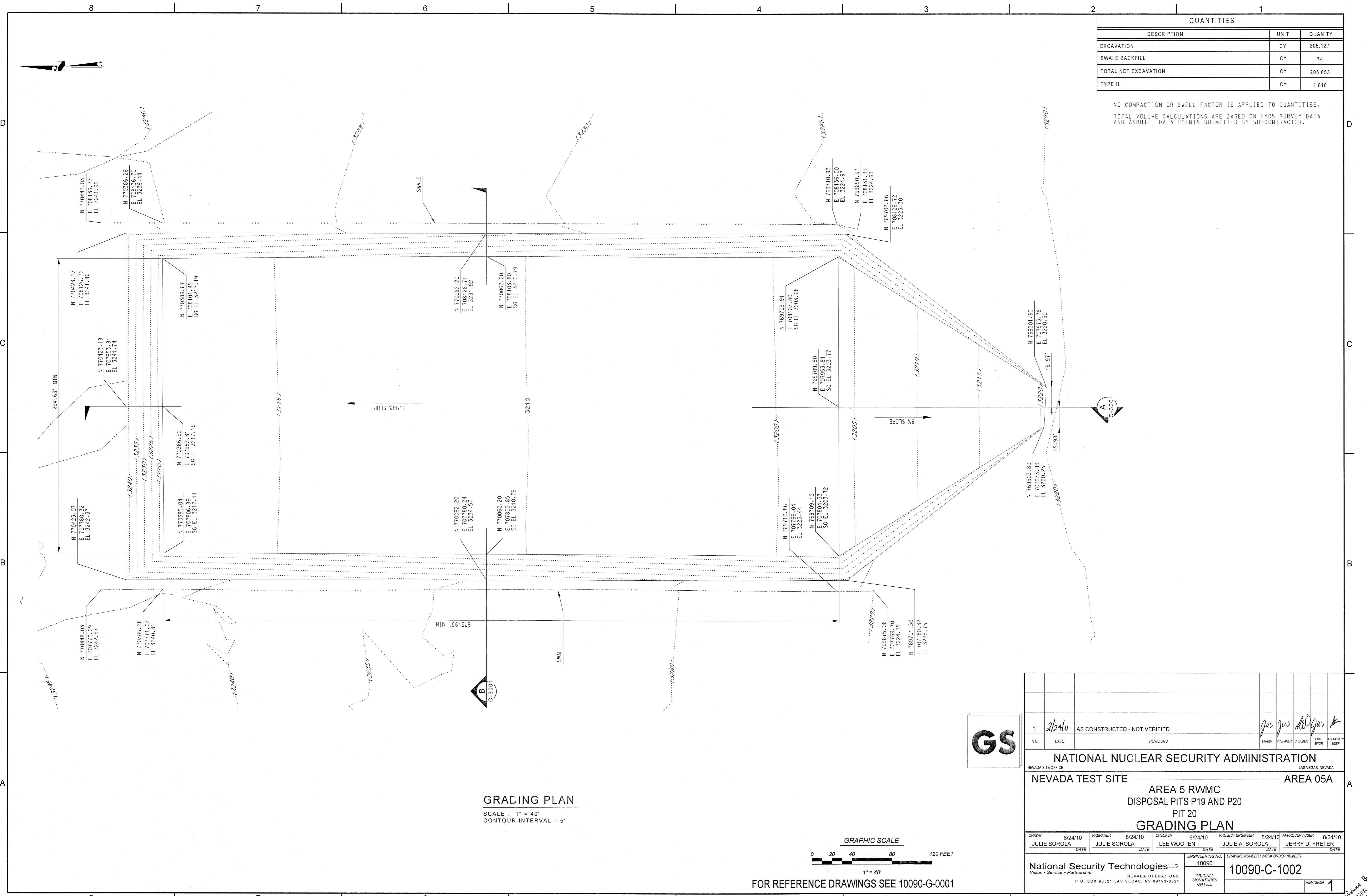


FOR REFERENCE DRAWINGS SEE 10090-G-0001

1	2/24/11	AS CONSTRUCTED - NOT VERIFIED							
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NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA TEST SITE AREA 05A AREA 5 RWMC DISPOSAL PITS P19 AND P20 PIT 19 GRADING PLAN									
DRAWN JULIE SOROLA DATE 8/24/2011	PREPARED JULIE SOROLA DATE 8/24/2011	CHECKER LEE WOOTEN DATE 8/24/2011	PROJECT ENGINEER JULIE A. SOROLA DATE 8/24/2011	APPROVER / USER JERRY D. FRETER DATE 8/24/2011					
National Security Technologies LLC Vision • Service • Partnership NEVADA OPERATIONS P. O. BOX 98521 LAS VEGAS, NV 89193-8521			ENGINEERING NO. 10090	DRAWING NUMBER / WORK ORDER NUMBER 10090-C-1003					
ORIGINAL SIGNATURES ON FILE									

DC Revisited By
 JK.Sol., NTC of
 8/24/11

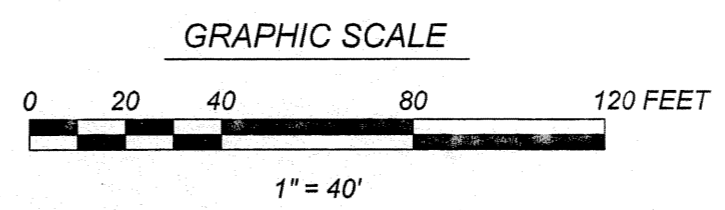
Figure 4. Cell 20 Grading Plan



QUANTITIES		
DESCRIPTION	UNIT	QUANTITY
EXCAVATION	CY	205,127
SWALE BACKFILL	CY	74
TOTAL NET EXCAVATION	CY	205,053
TYPE II	CY	1,810

NO COMPACTION OR SWELL FACTOR IS APPLIED TO QUANTITIES.
 TOTAL VOLUME CALCULATIONS ARE BASED ON F05 SURVEY DATA AND ASBUILT DATA POINTS SUBMITTED BY SUBCONTRACTOR.

GRADING PLAN
 SCALE : 1" = 40'
 CONTOUR INTERVAL = 5'



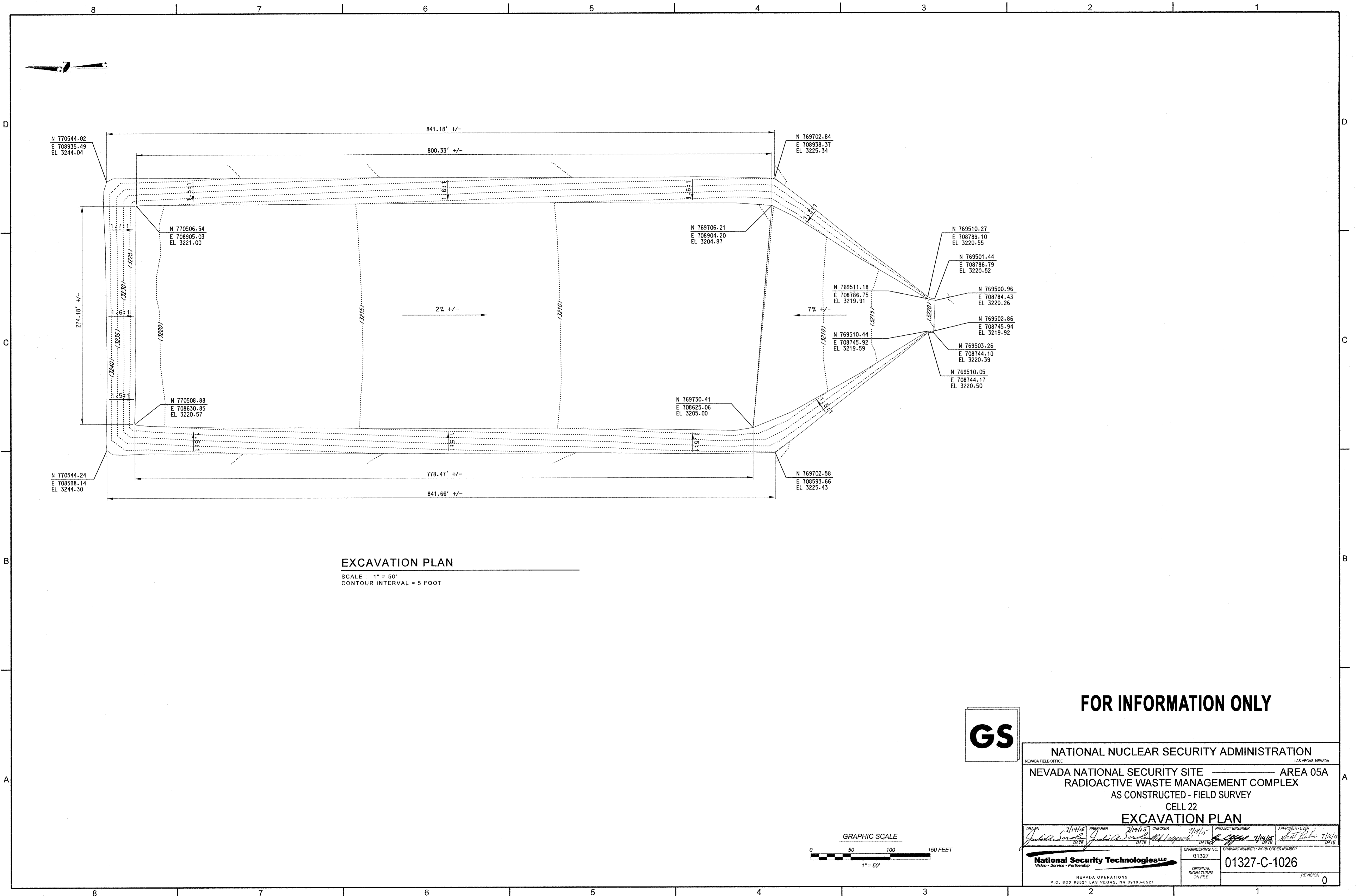
FOR REFERENCE DRAWINGS SEE 10090-G-0001



1		2/24/10	AS CONSTRUCTED - NOT VERIFIED						
NO	DATE	REVISIONS		DRAWN	PREPARED	CHECKER	PROJ ENGR	APPROVER	USER
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DRAWN	8/24/10	PREPARED	8/24/10	CHECKER	8/24/10	PROJECT ENGINEER	8/24/10	APPROVER / USER	8/24/10
JULIE SOROLA		JULIE SOROLA		LEE WOOTEN		JULIE A. SOROLA		JERRY D. FRETER	
National Security Technologies LLC		NEVADA OPERATIONS		10090		DRAWING NUMBER / WORK ORDER NUMBER			
Vision • Service • Partnership		P.O. BOX 88521 LAS VEGAS, NV 89193-8521		ORIGINAL SIGNATURES ON FILE		10090-C-1002			
									REVISION 1

DC Reviewed By
 Wesley W. H. H. H.
 8/24/10

Figure 5. Cell 22 Excavation Plan



EXCAVATION PLAN
 SCALE : 1" = 50'
 CONTOUR INTERVAL = 5 FOOT



FOR INFORMATION ONLY

NATIONAL NUCLEAR SECURITY ADMINISTRATION <small>NEVADA FIELD OFFICE LAS VEGAS, NEVADA</small>			
NEVADA NATIONAL SECURITY SITE		AREA 05A	
RADIOACTIVE WASTE MANAGEMENT COMPLEX AS CONSTRUCTED - FIELD SURVEY CELL 22 EXCAVATION PLAN			
<small>DRAWN</small> <i>Jubila Sarda</i> <small>DATE</small> 7/14/15	<small>PREPARED</small> <i>Jubila Sarda</i> <small>DATE</small> 7/14/15	<small>CHECKER</small> <i>Mark Loggach</i> <small>DATE</small> 7/14/15	<small>PROJECT ENGINEER</small> <i>[Signature]</i> <small>DATE</small> 7/14/15
<small>APPROVER / USER</small> <i>Scott Kaban</i> <small>DATE</small> 7/14/15		<small>ENGINEERING NO.</small> 01327	<small>DRAWING NUMBER / WORK ORDER NUMBER</small> 01327-C-1026
<small>ORIGINAL SIGNATURES ON FILE</small>		<small>REVISION</small> 0	

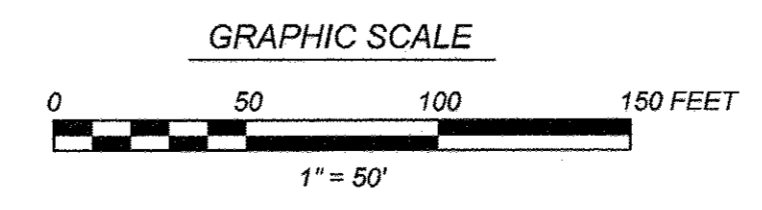
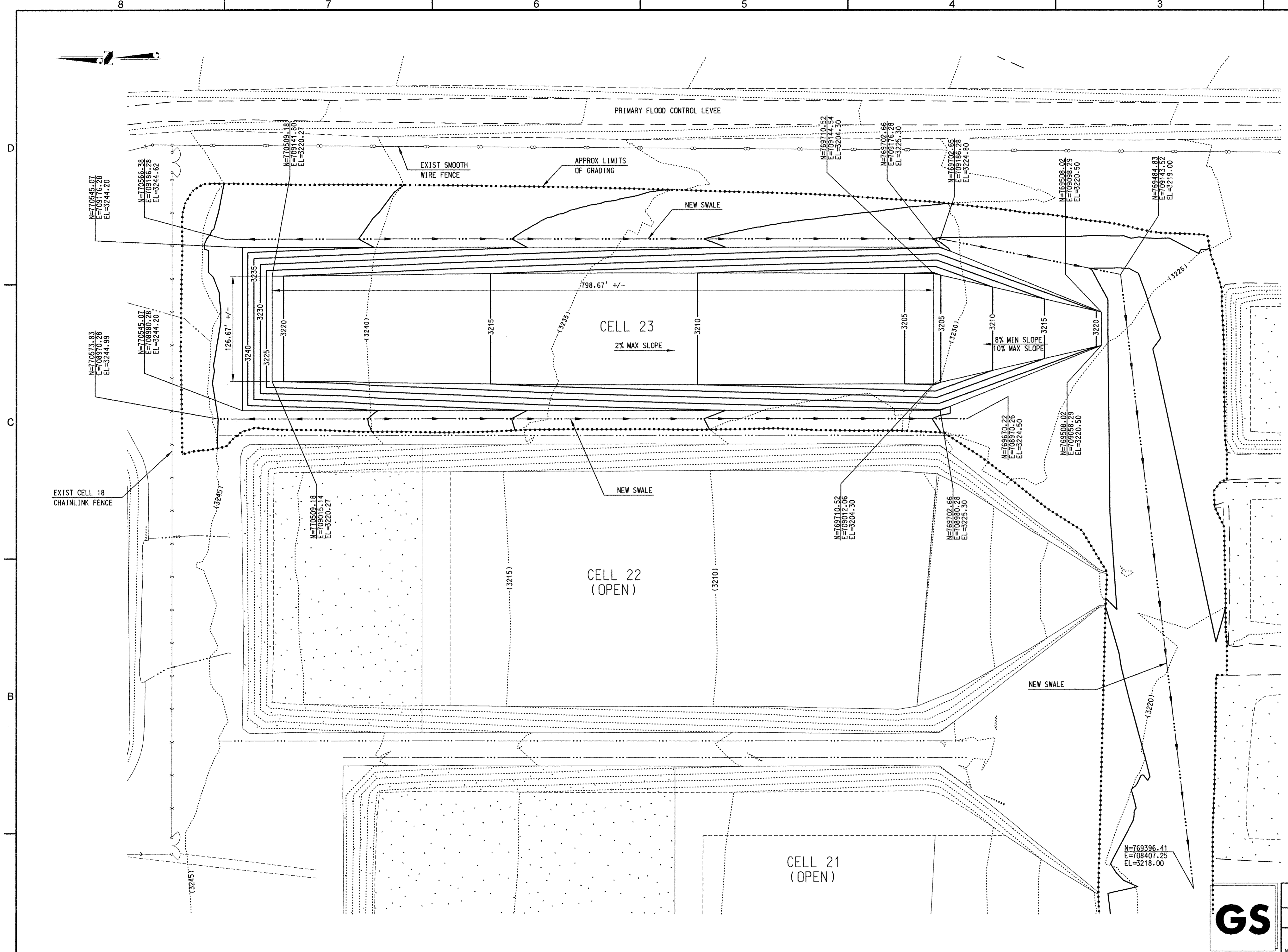


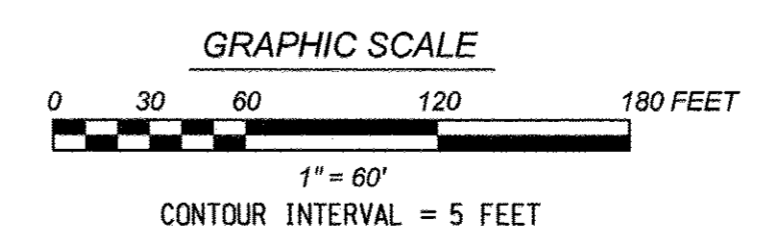
Figure 6. Cell 23 Grading Plan

ESTIMATED QUANTITIES		
DESCRIPTION	UNIT	QUANTITY
EXCAVATION	CY	183,150
BACKFILL	CY	803
TOTAL NET EXCAVATION	CY	182,347

A COMPACTION OR SWELL FACTOR OF 1.25 IS APPLIED TO PROVIDED QUANTITIES.



GRADING PLAN
SCALE: 1" = 60'



UNCLASSIFIED
R. Markon N. Ste. Eng
1 Nov 17

ISSUED FOR CONSTRUCTION



NO.		DATE		REVISIONS		PREPARED	CHECKED	APPROVED	PROJECT ENGINEER	ACCEPTANCE
<p align="center">NATIONAL NUCLEAR SECURITY ADMINISTRATION NEVADA FIELD OFFICE LAS VEGAS, NEVADA NEVADA NATIONAL SECURITY SITE AREA 05A RADIOACTIVE WASTE MANAGEMENT COMPLEX DISPOSAL CELL 23</p>										
<p align="center">GRADING PLAN</p>										
PREPARED	DATE	CHECKED	DATE	APPROVED	DATE	PROJECT ENGINEER	DATE	ACCEPTANCE	DATE	
<p>National Security Technologies LLC Vision • Service • Partnership</p>						ENGINEERING NO. 01892	DRAWING NUMBER 01892-C-1002		REVISION 0	
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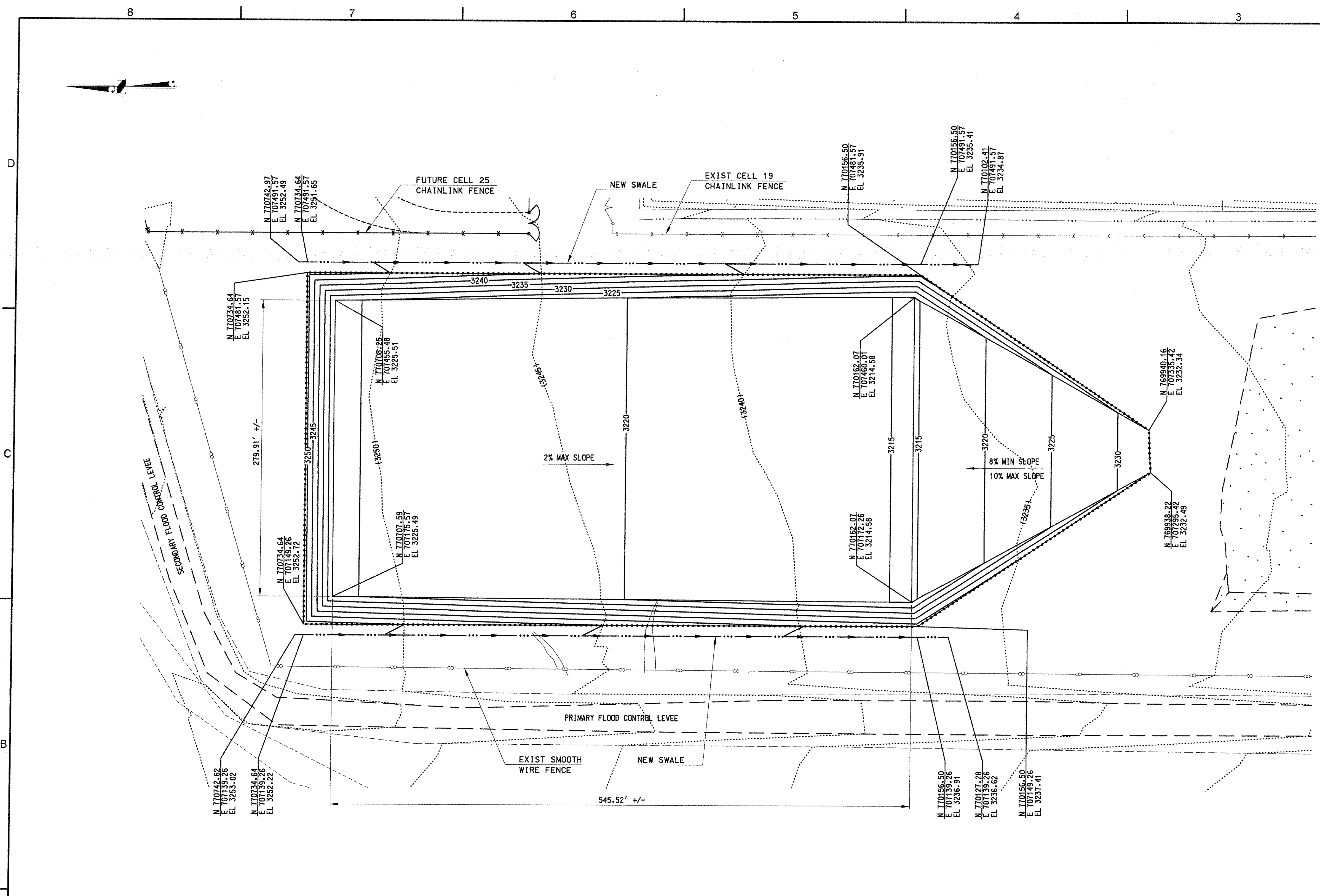
Figure 7. Cell 24 Grading Plan

ESTIMATED QUANTITIES

DESCRIPTION	UNIT	QUANTITY
EXCAVATION	CY	214.152

A COMPACTION OR SWELL FACTOR OF 1.25 IS APPLIED TO PROVIDED QUANTITIES.

EXCAVATION QUANTITY ASSUMES SOIL RAMP OVER BERM HAS BEEN REMOVED PRIOR TO EXCAVATION.



GRADING PLAN

SCALE: 1" = 50'

ISSUED FOR CONSTRUCTION



1 REVISED AND REDRAWN. CELL 25 FENCE RELOCATED IN LINE WITH CELL 19 FENCE AND CELL 24 WIDENED.

NATIONAL NUCLEAR SECURITY ADMINISTRATION
NEVADA FIELD OFFICE LAS VEGAS, NEVADA

NEVADA NATIONAL SECURITY SITE AREA 05A
RADIOACTIVE WASTE MANAGEMENT COMPLEX
DISPOSAL CELL 24

GRADING PLAN

PREPARED 3/20/18	CHECKED 3/26/18	APPROVED 3/26/18	PROJ. ENGINEER 3/26/18	ACCEPTANCE NA
DATE	DATE	DATE	DATE	DATE

MANAGED AND OPERATED BY
NEVADA NATIONAL SECURITY SITE

MSTS
MISSION SUPPORT AND TEST SERVICES LLC
NEVADA OPERATIONS
P.O. BOX 9321
LAS VEGAS, NV 89193-8521

ENGINEERING NO. 01892
DRAWING NUMBER 01892-C-1003

ORIGINAL SIGNATURES ON FILE

REVISION 1

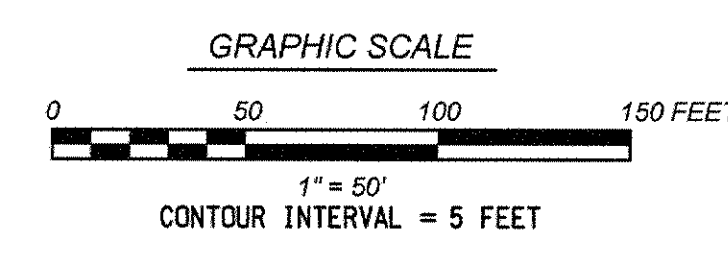
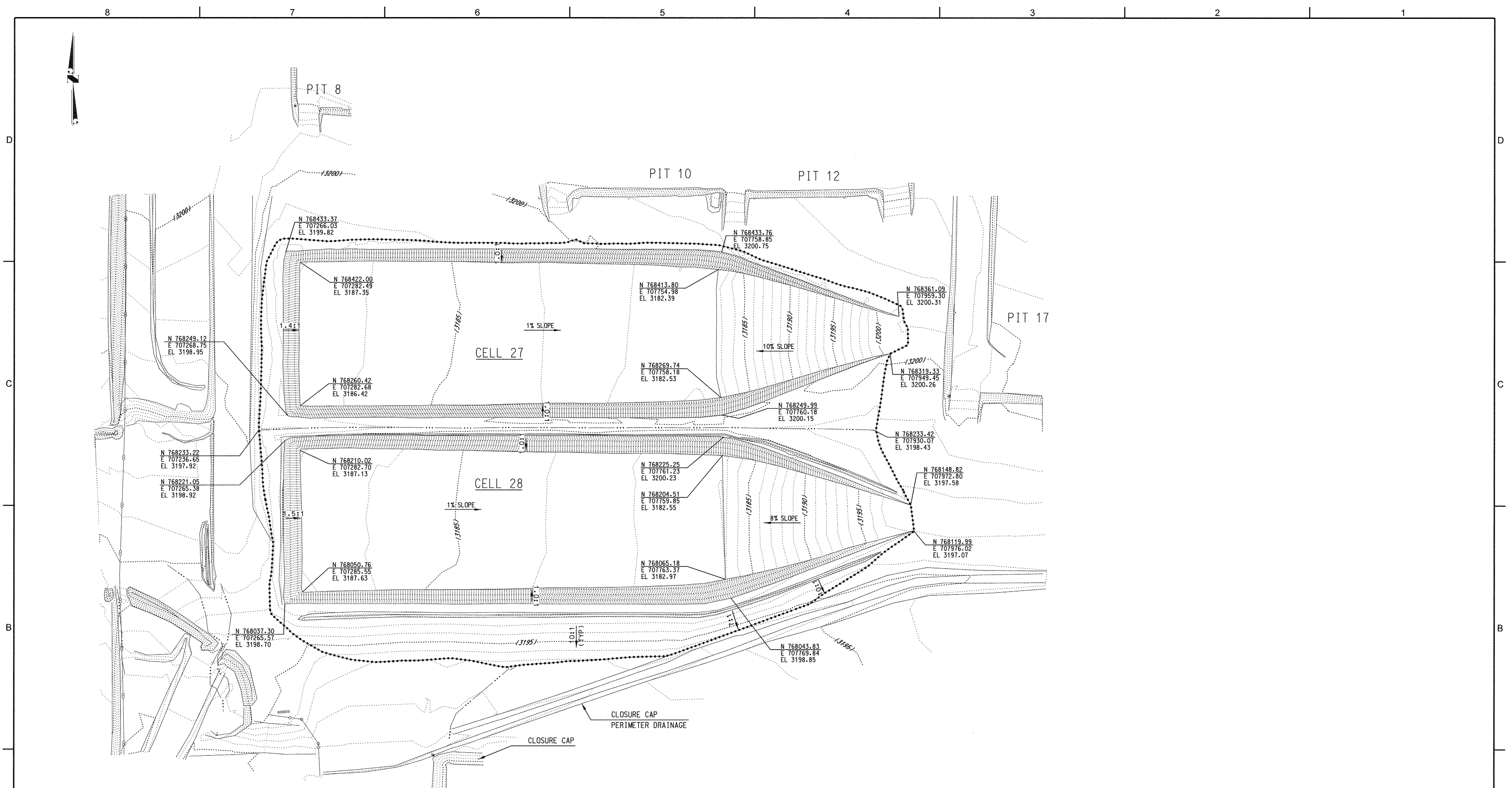
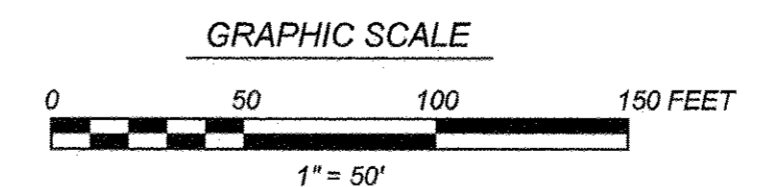


Figure 8. Cells 27 and 28 Grading Plan



GRADING PLAN
 SCALE : 1" = 50'
 FINISH CONTOUR INTERVAL = 1 FOOT (DOTTED)



GS	1	8/18/16	AS CONSTRUCTED						
	NO	DATE	REVISIONS	DRAWN	PREPARED	CHECKER	PROJ ENGR	APPROVER USER	
NATIONAL NUCLEAR SECURITY ADMINISTRATION <small>NEVADA FIELD OFFICE LAS VEGAS, NEVADA</small>									
NEVADA NATIONAL SECURITY SITE AREA 05A RADIOACTIVE WASTE MANAGEMENT COMPLEX SHALLOW DISPOSAL CELLS 27 & 28									
GRADING PLAN									
DRAWN	7/14/15	PREPARED	7/14/15	CHECKER	7/14/15	PROJECT ENGINEER	7/14/15	APPROVER / USER	7/16/15
JULIE A. SOROLA	DATE	JULIE A. SOROLA	DATE	M. LEOPARDI	DATE	RYAN CLIFFORD	DATE	SCOTT KRANKER	DATE
National Security Technologies LLC <small>VISION • SERVICE • PARTNERSHIP</small>						ENGINEERING NO.	DRAWING NUMBER / WORK ORDER NUMBER		
						01327	01327-C-1021		
<small>NEVADA OPERATIONS P. O. BOX 98521 LAS VEGAS, NV 89193-8521</small>						ORIGINAL SIGNATURES ON FILE	REVISION 1		

Exhibit 1

PLN-1124, Operation and Maintenance Plan for Area 5 Asbestos Solid Waste Disposal Cells

December 15, 2015
Rev. 1

Prepared by

National Security Technologies, LLC

NATIONAL SECURITY TECHNOLOGIES COMPANY PLAN

Title: Operation and Maintenance Plan for Area 5 Asbestos Solid Waste Disposal Cells	Document Number: PLN-1124
	Revision Number: 1
Responsible Organization: Nuclear Operations	Effective Date: December 15, 2015
	Page 1 of 9
Revision Control: This company plan supersedes PLN-1124, "Operation and Maintenance Plan for Area 5 Asbestos Solid Waste Disposal Cells" Revision 0, dated October 19, 2015.	

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Document Number: **PLN-1124**

Rev. 1

Effective Date: **12/15/2015**

Document Title: **Operation and Maintenance Plan for Area 5 Asbestos Solid Waste Disposal Cells**

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Acronyms

ALLW	asbestiform low-level waste
CFR	Code of Federal Regulations
ft	foot (feet)
LLHB	low-level radioactive hydrocarbon-burdened
LLW	low-level waste
LWIS	Low-Level Waste Information System
m	meter(s)
NAC	Nevada Administrative Code
NNSA/NFO	U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office
NNSS	Nevada National Security Site
NNSSWAC	Nevada National Security Site Waste Acceptance Criteria
NSTec	National Security Technologies, LLC
RWMS	Radioactive Waste Management Site
RWO	Radioactive Waste Operations
SWDS	Solid Waste Disposal Site
WMP	Waste Management Program

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

1.1 Collection and Transportation

Waste Management Program/Radioactive Waste Operations (WMP/RWO) personnel are responsible for the day-to-day operation and maintenance of the Area 5 SWDS (Cells 19, 20, 22, 27, and 28). The generator is 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 – U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office (NNSA/NFO) Assistant Manager for Environmental Management
- Transporter approval – waste generator facility
- Disposal packet approval – National Security Technologies, LLC (NSTec), WMP/RWO Facilities Supervisor, or designee
- Shipment refusal – NSTec/WMP/Low-Level Waste (LLW) Project Manager, or designee

Personnel who staff the SWDS operations 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) Part 1910.120, “Hazardous Waste Operations and Emergency Response”), Radiation Worker training (as mandated by 10 CFR 835, “Occupational Radiation Protection”), and Hazard Communication Training (as mandated by 29 CFR 1910.1200). In addition, personnel participating in asbestos disposal operations receive an annual Asbestos Awareness Training, (as required by 29 CFR 1910.1001, “Asbestos”).

1.3 Processing In

Waste may only be accepted while disposal site operators are present. At Gate 100, the driver is badged for entry onto the Nevada National Security Site (NNS). At the Area 5 RWMS, the

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transporter must check in at the main office. Shipping documents and records are 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
- Over-packing

Waste material containers are 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 to prevent roll-away. Actual configuration may vary as determined by RWO personnel. Waste containers are stacked in the SWDS in such a manner that all portions of each package are approximately 1.2 meters (m) (4 feet [ft]) below the natural grade. In addition, the location of each container is recorded in the Low-Level Waste Information System (LWIS) database.

1.5 Operations Log

An Operations log is maintained with the following information:

- 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 consists of the following:

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

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

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 are recorded in the Area 5 RWMS database for an indefinite period. Hard copy records are stored for at least two years at the Area 5

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RWMS office. After this period, records are 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
- 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 are 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 is recorded in the Low-Level Waste Information System (LWIS) database. Five complete rows, or approximately 6.1 m (20 ft), plus the stair-step configuration from the front of the face, are always 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 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 include cross-sectioned cells separated by compacted cover material, are not applicable.

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1.10.2 Operational/Temporary Cover

Permissible waste is packaged in 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 is containerized or packaged in such a manner that windblown material will not exist at this disposal site. This ensures 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 asbestiform low-level waste (ALLW) is 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 911 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.

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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 located in Area 6, approximately 21 km (13 mi) away and operates 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 911, 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 that 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 is 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/NFO will submit a solid waste report to the Nevada Division of Environmental Protection Bureau of Federal Facilities for the preceding calendar year, by January 30 of each year. NNSA/NFO will include low-level radioactive hydrocarbon-burdened (LLHB) waste and regulated ALLW as separate items on the annual waste report. Information contained therein will include:

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Waste Disposal Cells**

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

Exhibit 2

PLN-1022, Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities

July 19, 2017
Rev. 7

Prepared by
National Security Technologies, LLC

NATIONAL SECURITY TECHNOLOGIES COMPANY PLAN	
Title: Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities	Document Number: PLN-1022
	Revision Number: 7
Responsible Organization: Nuclear Operations Directorate (NOD)	Effective Date: 07/19/2017
	Page 1 of 38
Revision Control: This company plan supersedes PLN-1022, "Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities," Revision 6, dated November 9, 2015.	
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Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities

NATIONAL SECURITY TECHNOLOGIES COMPANY PLAN

Document Number: **PLN-1022**

Rev. 7

Effective Date: **07/19/2017**

Document Title: **Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities**

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ADMINISTRATIVE INFORMATION

Site: Nevada National Security Site Area 3 and 5 Radioactive Waste Facilities

Project: Radioactive Waste Management Facilities

Date Prepared: 07/19/2017

APPROVALS

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

Original Signed by Tom Hergert

Tom Hergert,
Nuclear Facility Manager

7-10-17

Date

Original Signed by Doug Frenette

Doug Frenette,
Waste Operations Manager

7-10-17

Date

Original Signed by Bradley Bounds

Bradley Bounds,
Health Physics Supervisor

7-10/17

Date

Original Signed by Donald Russell

Donald "Wade" Russell,
Environmental and Waste Management Safety Manager

7/17/17

Date

NATIONAL SECURITY TECHNOLOGIES COMPANY PLAN

Document Number: **PLN-1022**

Rev. **7**

Effective Date: **07/19/2017**

Document Title: **Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities**

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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.
4	All	Document revised to incorporate the new Mixed Waste Storage Unit and new Mixed Waste Disposal Cell.
5	All	Document placed in new template, acronym list updated, document title changed, and additional sections added/deleted.
6	All	Document revised to incorporate general safety hazards and controls.
7	All	Document revised to incorporate EDMS suggestion, add clarifying information for multiple sections, and update References.

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Document Number: PLN-1022	Rev. 7	Effective Date: 07/19/2017
Document Title: Health and Safety Plan for the Area 3 and 5 Radioactive Waste Management Facilities	Page 4 of 38	

NOTICE

Personnel who may be exposed to hazardous waste or material at the Radioactive Waste Management Complex/Radioactive Waste Management Site (RWMC/RWMS) 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 Safety and Health Professional for assistance.

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ACRONYMS AND ABBREVIATIONS

AEAA	Alternate Emergency Assembly Area
ALARA	as low as reasonably achievable
ALLW	asbestos low-level waste
ALWD	Activity Level Work Document
ARL/SORD	Air Resources Laboratory/Special Operations and Research Division
CA	contamination area
CAAB	Controlled Area Access Building
CFR	Code of Federal Regulations
cm	centimeter(s)
CRZ	contamination reduction zone
dBA	decibel, A-weighted
DHP	Drum Holding Pad
DOE	U.S. Department of Energy
E&EM	Ecological and Environmental Monitoring
EPA	U.S. Environmental Protection Agency
EPIP	emergency plan implementing procedure
E&WM	Environmental and Waste Management
EZ	Exclusion Zone
ft	foot (feet)
GFCI	ground fault circuit interrupter
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations
HCA	high-contamination area
HMIS	Hazardous Materials Identification System
HP	Health Physicist
hr	hour
IH	Industrial Hygiene
in.	inch(es)
IWCP	Integrated Work Control Process
JHA	Job Hazard Analysis
kg	kilogram
km	kilometer(s)
lb	pound(s)
LED	Local Emergency Director
LLHB	low-level hydrocarbon-burdened

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LLW	low-level waste
LOQI	List of Qualified Individuals
m	meter(s)
mg	milligram(s)
mi	mile(s)
min	minute
MLLW	mixed low-level waste
mph	miles per hour
NAC	Nevada Administrative Code
NFM	Nuclear Facility Manager
NIOSH	National Institute for Occupational Safety and Health
NNSA/NFO	U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office
NNSS	Nevada National Security Site
NSTec	National Security Technologies, LLC
OCC	Operations Command Center
OSHA	Occupational Safety and Health Administration
pCi/m²/s	picocurie/square meter/second
PIT	powered industrial truck
PM	preventive maintenance
PPE	personal protective equipment
PTHR	Pre-Task Hazard Review
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RTR	real-time radiography
RWMC	Radioactive Waste Management Complex
RWMS	Radioactive Waste Management Site
RWO	Radioactive Waste Operations
RWP	Radiological Work Permit
SAR	Supplied Air Respirator
SCBA	self-contained breathing apparatus
SDS	Safety Data Sheet
SIS	Sprung Instant Structure
SME	subject matter expert
SOP	Standard Operating Procedure
SSO	Site Safety Officer
THWP	Toxic Hazard Work Permit
TLD	thermoluminescent dosimeter

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TPCB	Transuranic Pad Cover Building
TPH	total petroleum hydrocarbon
TRU	transuranic
TRU Pad	Transuranic Waste Storage Pad
TWA	time-weighted average
VERB	Visual Examination and Repackaging Building
VOC	volatile organic compound
WAC	Waste Acceptance Criteria
WEF	Waste Examination Facility

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INTRODUCTION

This Health and Safety Plan (HASP) establishes the health and safety requirements for low-level waste (LLW) and mixed low-level waste (MLLW) operations at the Area 3 and 5 Radioactive Waste Management Complex/Radioactive Waste Management Site (RWMC/RWMS). This plan is applicable to National Security Technologies, LLC (NSTec), personnel and subcontractors assigned to the RWMC/RWMS. 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." All project personnel and subcontractors will use this HASP, subcontractor safety plans, U.S. Department of Energy Order DOE O 440.1B, "Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees," the DOE Construction Manual, and the DOE Handbook for Occupational Health and Safety During Hazardous Waste Activities as the upper-tier documents to govern health and safety for workers during operations at the RWMC. Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910, and 29 CFR 1926, "Safety and Health Regulations for Construction," will be used with approved company and sub-tier documents to ensure worker protection and safety. The DOE Radiological Control Manual, 10 CFR 835, "Occupational Radiation Protection," and DOE/NV/25946--801 Revision 2, "Nevada National Security Site Radiological Control Manual," will be used for radiological protection of workers. During development of this HASP, consideration was given to current safety standards as defined by the U.S. Environmental Protection Agency (EPA), OSHA, and NIOSH [National Institute for Occupational Safety and Health] for health effects and standards for known contaminants and procedures designed to account for the potential of exposure to unknown substances.

All activity-level work will be performed in accordance with Core Company Directive CCD-QA05.001, "NSTec Integrated Work Control Process." This HASP is a part of the Integrated Safety Management System, as defined in Company Policy PY-3200.002, "Integrated Safety Management System," to ensure the health and safety of employees and to protect the environment. The Environmental and Waste Management (E&WM) Directorate at NSTec strives to achieve zero accidents.

SITE LOCATION/DESCRIPTION

The RWMC/RWMS is located at the Nevada National Security Site (NNSS) in southern Nevada, 65 miles (mi) (105 kilometers [km]) northwest of Las Vegas, Nevada (Figure 1-1, "NNSS Location"). The NNSS is subdivided into administrative areas, with the Area 5 RWMC 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, Nevada (Figure 1-1). The Area 3 RWMS is located approximately 28 mi (44 km) north of the main gate in Yucca Flat in the northwest section of Area 3.

The Area 5 RWMC provides the structures, systems, and supporting infrastructure to implement NNSS waste management functions. These functions include LLW/MLLW storage, disposal, characterization, and treatment; transuranic (TRU) storage and shipping; classified material storage; and several secondary support functions such as LLW/MLLW sampling (Figure 1-2, "Area 5 RWMC Site Map"). The Area 3 RWMS serves as a bulk LLW disposal site for clean-up of underground tests and above-ground testing conducted at NNSS as well as other U.S. Department of Energy (DOE) locations.

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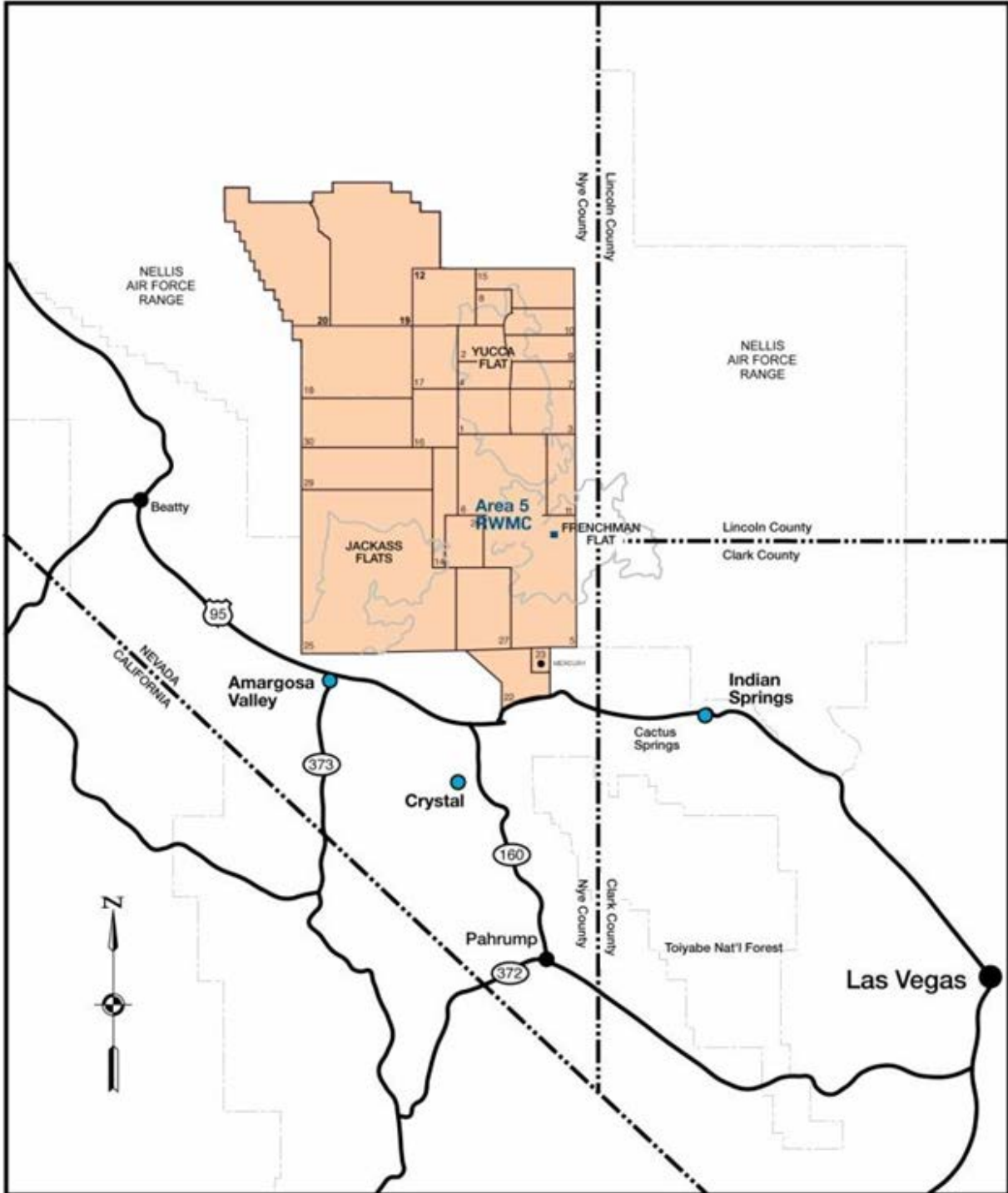


Figure 1-1. NNSS Location

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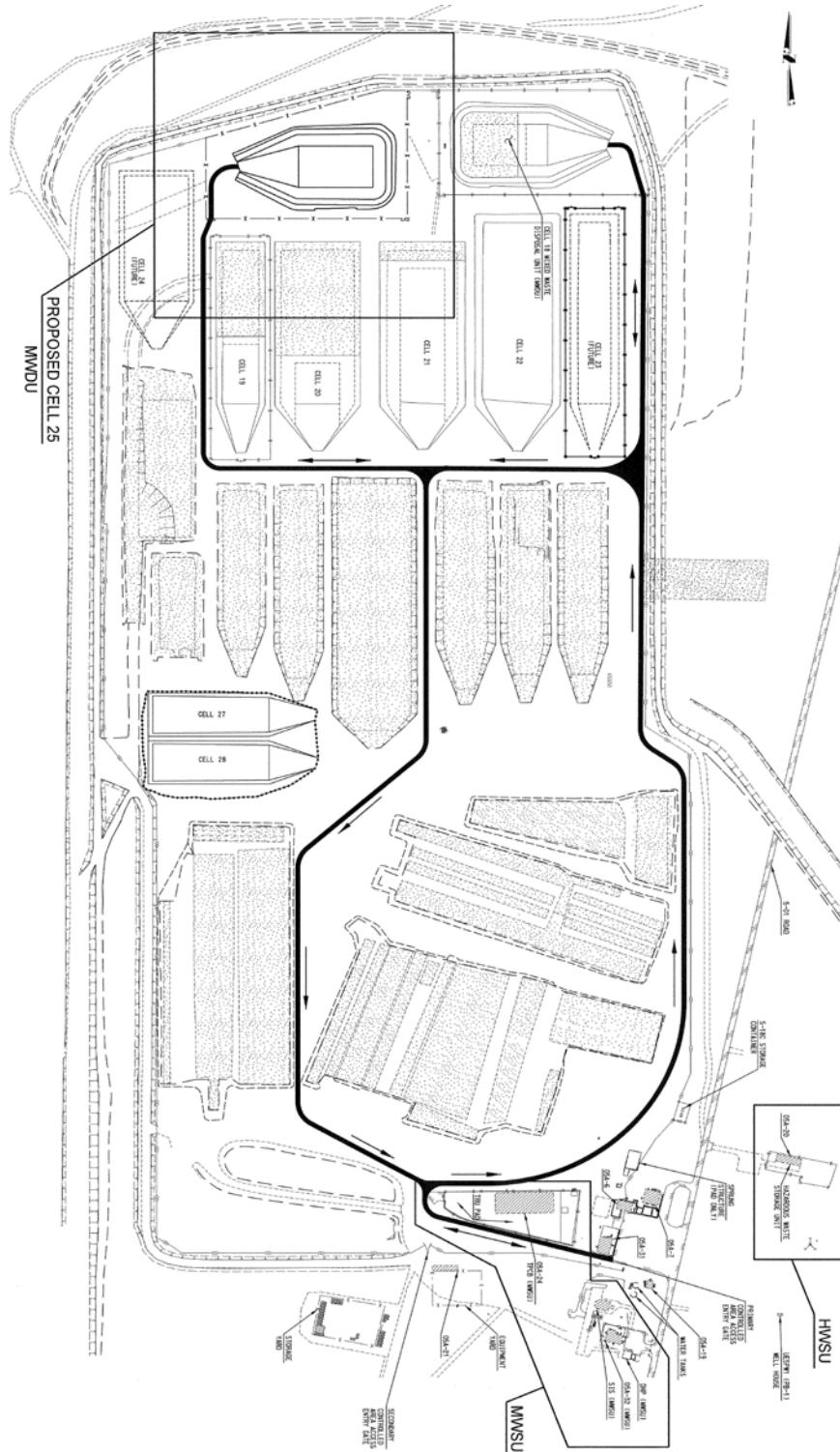


Figure 1-2. Area 5 RWMC Site Map

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The mission of the Area 5 RWMC is to serve as the western region's national disposal site for LLW and MLLW generated from DOE and U.S. Department of Defense facilities. Presently, LLW, MLLW, asbestos low-level waste (ALLW), polychlorinated biphenyl bulk product LLW, and non-radioactive, non-hazardous waste are disposed in the Area 05A disposal cells.

OPERATIONS PERFORMED AT AREA 3 RWMS

Inspections, including radiological surveys, are conducted on a monthly basis. Ecological and Environmental Monitoring (E&EM) personnel perform monitoring and sampling. Ground maintenance includes road maintenance, erosion repair, and waste container covering. Area 3 is idle and is no longer accepting waste.

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 procedures. Inspection of the equipment will ensure its ability to perform design functions.

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 will be used to verify that an activity was performed in accordance with applicable requirements for safe operations.

OPERATIONS PERFORMED AT AREA 5 RWMC

The focus of this HASP is mixed waste operations at the Area 5 RWMC (Figure 1-2). LLW/MLLW containers will be received, surveyed, inspected, and off-loaded into the appropriate storage area or disposal cells. MLLW may also require characterization and approved treatment. Retrieval of buried containers can occur. Containers of MLLW may be verified using the real-time radiography (RTR) system, and may be stored at the Transuranic Waste Storage Pad (TRU Pad)/Transuranic Pad Cover Building (TPCB), the Visual Examination and Repackaging Building (VERB), the Sprung Instant Structure (SIS), and the Drum Holding Pad (DHP).

The primary function of the TRU Pad/TPCB is to provide 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 that are stored can contain hazardous constituents. The TRU Pad is an asphalt pad surrounded by a continuous curb along its 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 that 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, LLW decontamination activities, treatment (macroencapsulation), packaging and sampling of waste containers, and storage of TRU waste and LLW/MLLW.

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1.0 SAFETY AND HEALTH HAZARD ANALYSIS

1.1 Operational Activities

1.1.1 RWMC Operations use a team-based approach based upon the concept of a Planning Team made up of SMEs [subject matter experts] to implement the IWCP [Integrated Work Control Process]. The team will conduct a walkdown and or tabletop review of the project to determine the complexity of the scope, the potential consequence(s) of improper performance of any step, and the frequency of the task. Once considered, an Activity Level Work Document (ALWD) is developed. Typically, a Standard Operating Procedure (SOP) is selected for repeatable operations. On occasion, a work package may be developed.

1.2 Radiological Hazards

1.2.1 Identified Radiological Hazards

- A. Penetrating X-rays are generated by the RTR machine.
- B. Personnel who handle LLW/MLLW may be exposed to beta, gamma, and/or neutron penetrating radiation, along with alpha and beta contamination. The radiological hazard associated with this waste material is from the possible suspension of radioactive particulates 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. Overexposure from high radiation waste shipments, such as the TN RAM Cask and NAC-LWT Cask, also poses a hazard.

1.2.2 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 of 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 Radiological Work Permits (RWPs), when required.
- C. Using as low as reasonably achievable (ALARA) techniques minimizes external whole body radiation and extremity exposures from drum-handling operations and disposal.
- D. As with any work associated with LLW/MLLW, substantial engineering designs and precautions are taken so that the radioactive materials stay within DOE-NV-325, "NNSW Waste Acceptance Criteria" (NNSW WAC).

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- E. RWPs, ALWDs, and Survey Plans are prepared for this facility. The RWPs and ALWDs state the appropriate radiological controls for a given activity, and Survey Plans provide direction for performing radiological surveys. RCTs are responsible for the oversight and enforcement of these controls. Workers are responsible for implementation and compliance with RWPs.
- F. To detect the spread of radiological contamination, RCTs perform numerous monitoring surveys, in accordance with Standard Operating Procedure SOP-0441.211, "Direct and Indirect Surveys," RWPs, and Survey Plans. The surveys assure adherence to established action limits for removable and fixed contamination, as directed by company procedures and DOE/NV/25946--801 Revision 2.

1.3 Fire and Explosion Hazards

1.3.1 Identified Fire and Explosion Hazards

- A. Waste approved for disposal at the Area 5 RWMC must meet specific requirements of the NNSS WAC. The NNSS WAC strictly prohibits ignitable, corrosive, reactive, or un-reacted explosives, pyrophorics, or incompatible waste forms. 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 accidents 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). The 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.

1.3.2 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. In addition, escorts and spotters are required to observe operations and control vehicles in order to prevent accidents.
- C. A controlled combustible zone is maintained around each disposal cell/Operational Unit to limit the amount of flammable material. The combustible control zone is identified in the following documents:
 - Documented Safety Analysis DSA-2151.100, "Documented Safety Analysis for the NNSS Area 3&5 Radioactive Waste Facilities"
 - Technical Safety Requirements TSR-2156.03, "Technical Safety Requirements for the Area 3 and 5 Radioactive Waste Management Sites Low-Level Waste Activities"
 - SOP-2151.203, "Low-Level Waste Handling and Storage Program (SBI)"

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- D. Personnel response to a fire at the RWMC is addressed in Emergency Plan Implementing Procedure EPIP-RWMC.001, "Radioactive Waste Management Complex Emergency Response Actions." The NNSS Fire Department response is coordinated through a written fire response plan.
- E. Fire hazards in the RTR are suppressed by a water-based fire suppression system. An installed fire alarm system alerts personnel and the NNSS Fire Department.
- F. Generators of MLLW are prohibited from packaging incompatible waste together. This is verified through the waste certification process and SOP-2151.203 at Area 05A. Containers with liquids are segregated and stored on spill pallets.

1.4 Chemical Hazards

1.4.1 Chemical Management

- A. Company Directive CD-M250.001, "Chemical Safety and Lifecycle Management Program," is designed to protect workers, the general public, and the environment, as well as ensure compliance with applicable regulations and statutes. The program applies to any chemical that is procured, received, stored, tracked, transferred, or disposed of by NSTec and its subcontractors. The Chemical Custodian is the individual who implements the Chemical Safety and Lifecycle Management Program in his/her facility.

1.4.2 Identified Chemical Hazards

- A. The NNSS WAC allows small quantities of toxic metals, such as beryllium and chromium; and organic compounds, such as benzene, carbon disulfide, and carbon tetrachloride. Currently there are in excess of 400 waste codes that are allowed under the NNSS WAC, although waste codes D001, D002, and D003 are strictly prohibited.
- B. Compressed gas cylinders are used around the RWMC for equipment, maintenance, fabrication, radiological instrumentation, and environmental monitoring.
- C. Permissible low-level hydrocarbon-burdened (LLHB) waste includes LLHB media and debris and LLHB demolition and construction waste. To be considered as LLHB, the material must exceed 100 milligrams/kilogram (mg/kg) of TPH [total petroleum hydrocarbon] using EPA Method 8015, modified.
- D. On-site and off-site generators designated by the U.S. Department of Energy, National Nuclear Security Administration Nevada Field Office (NNSA/NFO) are eligible to dispose of contaminated ALLW in accordance with the current version of the NNSS WAC. The ALLW is disposed of in a Nevada Division of Environmental Protection-permitted Solid Waste Disposal Site.
- E. Personnel may be exposed to workplace chemicals that are stored or used at the RWMC.

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1.4.3 Chemical Hazard Mitigation

- A. Hazardous waste received at the RWMC from off-site generators must conform to Land Disposal Restrictions, as required in the NNSW WAC, to be accepted for disposal by the state of Nevada. Containerized hazardous waste is disposed in a permitted disposal cell or stored in permitted locations. Waste packages are handled with care. RWMC personnel use engineering and administrative controls to help protect themselves and the environment.
- B. Personnel will comply with CD-P280.044, "Compressed Gas Cylinders." CD-P280.044 applies to above-ground work locations where compressed gas cylinders are used, transported, handled, or stored.
- C. ALLW and LLHB waste will be received at the RWMC 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 Nevada Administrative Code (NAC) 444.971, "Standards for Handling and Transportation." RWMC personnel use engineering and administrative controls to help protect themselves and the environment.
- D. Contaminated ALLW requires that RWMC personnel are all highly trained. Administrative controls are in place to help protect workers and the environment.
- E. Employees shall follow and comply with all manufacturers' Safety Data Sheets (SDSs) to prevent potential exposure to chemicals. Industrial Hygiene (IH) is contacted if clarification is required regarding a manufacturer's SDS. SDSs for all known RWMC hazardous chemicals are maintained within the MAXIMO program. The two Chemical Custodians and the Nuclear Facility Manager (NFM) have access to the SDSs. In Building 05A-7 is an SDS yellow binder which contains the SDS Index, grouped by storage location. If a generator provides a special chemical product for their operation, the users must review the manufacturer's SDS before use. A copy of the hazardous chemicals list is maintained in the front of the SDS binders. Secondary containers, such as spray bottles or polyethylene compression sprayers, must have an HMIS [Hazardous Materials Identification System] label when dispensing or transferring hazardous chemicals from the vendor-supplied containers to another container, in accordance with CD-P450.008, "Hazard Communication Program." If the potential for exposure to chemical hazards exists, RWMC personnel must complete Briefing 1RWO0119, "RWO HAZCOM – Workplace Chemical Orientation." 1RWO0119 is included in OQ00301, "RWO Access Qualification Program." RWMC personnel with unescorted access must complete OQ00301. If these requirements are not complete, an escort will be provided.

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1.5 Physical Hazards (Occupational/Industrial)

1.5.1 Identified Physical Hazards

- A. Pinch points, cuts, or lacerations to hands. Splash hazards or debris in eyes. Smashed foot injuries, cuts, or other injuries to feet. Head injuries resulting from frontal, side impact, and overhead hazards. Ringing in the ear(s) or loss of hearing from high noise environments. Injuries from heavy equipment (e.g., trucks [tractor/trailer and intermodal], forklifts, water masters, dirt moving equipment, cranes, counterweights, and other miscellaneous heavy equipment or vehicles). Exposure to the elements in hot, cold, or wet conditions. Slips, trips, and falls are possible due to uneven terrain and the location of the facilities.
- B. Injuries resulting from dull and/or damaged electric powered tools or hand tools.
- C. Possible exposures to electrical shock from corded power tools.
- D. Ergonomic (soft tissue) injuries, such as sprains and strains from using poor or improper lifting techniques, exceeding lifting capacity for individuals or pairs.
- E. Work on ladders poses a hazard due to falls and ladder failure. Ladders will be used to access elevated areas such as parts of heavy equipment, trailers, and to perform survey work.
- F. Falls from step stools.
- G. Falling loads not secure on fork tines.
- H. Injuries to personnel or property damage due to suspended loads falling, counterweights crushing, or rigging equipment failing.
- I. Damaged or overloaded rigging could fail. Rigging can be heavy and/or awkward to move.
- J. Falls from the basket of an aerial lift, contact with overhead power lines, and high winds.
- K. Improper use or management of vehicles may lead to personnel injury, vehicle damage, property, and/or waste containers damage.
- L. Falls into excavations or trenches.
- M. Unqualified personnel operating or servicing heavy equipment may injure themselves or others.
- N. Injuries from high-speed spinning wheels, discs, or cutting blades; improper parts installed.
- O. Personnel struck by faulty roll-up door.
- P. Injuries resulting from improper use or management of high-pressure washer; injury to personnel to include self or property damage.
- Q. Injuries resulting from improper use or management of air compressor, injury to personnel or property damage.
- R. Injuries resulting from knife use may include punctures, lacerations to self or others, and property damage.

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1.5.2 Physical Hazard Mitigation

- A. General requirements for work activities include personal protective equipment (PPE) in accordance with CD-P280.034, "Personal Protective Equipment." Safety glasses with side shields and protective footwear shall be worn for activities performed. Work gloves are also required to be worn when using tools and guiding or moving heavy parts, or to preclude pinches, cuts, or lacerations. Operators may wear gloves when operating equipment. Hard hats, hearing protection, and Class II high-visibility clothing will be used as required by Safety Personnel. Work clothing should be weather and task appropriate. Personnel shall maintain spatial awareness when working around equipment and on different surface conditions (examples: concrete, uneven terrain, landscape areas, and asphalt). Personnel shall stay off the portable dock and/or ramp when it is being raised/lowered, and/or when a trailer is being backed up to the platform.
- B. All equipment shall be inspected prior to each use, including a check of tools for uneven wear. Any defective equipment shall be removed from service and have a tag applied in accordance with CD-P280.036, "Warning/Notice Tags and Administrative Locks."
- C. Personnel will test GFCIs [ground fault circuit interrupters] prior to using electrical hand tools with cords, and will adhere to established safety practices in accordance with CD-P280.026, "Electrical Safety."
- D. Strains, sprains, and other injuries from poor ergonomics can be prevented through the careful selection/use of hand tools, and an ongoing awareness of body positioning during activities. CD-P280.009, "Back Injury Prevention Program," shall be followed to include the following:
 - Sixty (60) pounds (lb) is the maximum weight that an employee will be allowed to lift under optimal lifting conditions in their "power zone"
 - The "power zone" encompasses the area from the knees to the shoulders with a reach or stretch of less than one foot from the torso/waist
 - Anything that exceed the Recommended Weight Limit and/or is outside of the "power zone" (are in the "danger zone") will be considered a "zero lifting zone" job and will require the use of mechanical aids or the assistance of a coworker
- E. CD-P280.039, "Ladder Safety," shall be followed to include the following:
 - The minimum design live load shall be a single concentrated load of 200 lb
 - Ladders shall be climbed by one person at a time unless the ladder is designed to support more than one person
 - Ladders shall only be loaded with the maximum intended load for which they are built, and shall not be loaded beyond the manufacturer's rated capacity
 - Three points of contact shall be used when ascending and descending; a spotter shall be used to hold the in-use ladder; maintain body position between rails of the ladder (do not lean)

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- F. CD-P280.001, "General Safety Rules," Section 4.39, "Step Stools," shall be followed to include the following:
- Pay attention to body position and the task at hand while working from an elevated surface
- G. During forklift (also known as powered industrial truck [PIT]) operations:
- Operated by trained/authorized forklift operator
 - Operated in accordance with CD-P280.042, "Powered Industrial Trucks"
 - Forklift is currently inspected and the preventive maintenance (PM) due date has not been reached
 - Two personnel are present, one of whom is a spotter
 - Personnel are aware of forklift use; known loads are secure on fork tines; and loads are ratchet-strapped, as needed
 - A PIT is never driven towards anyone, especially someone standing in front of a fixed object
 - Roadway is clear
- H. When using a crane or hoist:
- The crane/hoist is operated by certified/authorized crane/hoist operator
 - The crane/hoist is currently inspected and the PM due date has not been reached
 - Two personnel are present, one of whom is a signal person
 - Personnel are aware of crane/hoist use
 - Personnel are kept away from suspended loads
 - Extension devices are used to reach under loads, when needed (i.e., taking swipes or placing landing cushioning/dunnage)
 - The pathway is clear
 - Signs and barricades are used to control traffic/unauthorized individuals in accordance with CD-P280.031, "Barricades and Traffic Control"; Danger tape is use to keep unauthorized personnel away from crane counter weights
 - A lift plan shall be followed, when required
 - Tag line(s) shall be used, as needed
 - Lifting equipment, hoists, slings, chains, and rigging accessories shall be inspected daily before use
 - Drum-handling devices are operated and maintained by personnel who are trained and qualified in accordance with provisions specified by the manufacturer
 - Dust control methods shall be used in/near the work locations, as needed

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- I. Certified and tested rigging and hoist equipment shall be used in accordance with CD-G022.003, "Mobile Crane Inspections"; CD-G022.004, "Mobile Crane Operations and Construction/Demolition Rigging"; and CD-G022.005, "Rigging Inspections."
- J. Personnel operating lift and/or aerial work platforms shall be qualified in accordance with CD-P280.043, "Aerial Work Platforms/Lifts."
- K. Parked vehicles shall be turned off, the transmission in park, and the parking brake engaged, unless someone is in the driver's seat and in control of the vehicle. If the vehicle needs to be running to power vehicle-mounted equipment, then personnel shall be within 20 ft and the transmission in park, the parking brake set, and a wheel chocked. Do not park on waste cell ramps or other like earthen ramps. Unattended vehicles are not allowed in Controlled Combustible Zones.
- L. For all trenches and excavated sites that are subject to pedestrian traffic, barricades shall be installed that are suitable to prevent employees from accidentally falling into the excavation. Flagging can be used to increase visibility. Barricades shall be kept at least 6 ft from the open edges of trenches and excavations, unless engineered fall-protection devices are being used as trench barricades and approved by the Site Safety Officer (SSO). Personnel shall adhere to established safety practices in accordance with CD-P280.033, "Excavation and Surface Penetration."
- M. The LLW Supervisor ensures that waste container movement is conducted only by trained personnel using approved equipment, in accordance with applicable company procedures. Only qualified personnel shall operate or service heavy equipment.
- N. Machinery and equipment are inspected to ensure that moving parts are properly guarded or isolated. Employees shall report unguarded moving or rotating parts to the LLW Supervisor.
- O. Personnel are not permitted to walk under an automatic door that is in operation. Personnel shall stand away from the door until the automatic stop occurs.
- P. Only briefed and authorized personnel may operate the high-pressure washer. Follow manufacture's safety and operating instructions. Inspect washer before use and confirm deadman trigger is fully operational. The wand must always be pointed at the work area. The wand must never be tied down. Never point the wand at yourself or other workers. The wand must be at least 42 in. (1.1 m) from the trigger to the tip and be equipped with a tip that emits a spray wider than 10 degrees. Operator must maintain good footing. Non-operators must remain a safe distance from the operator. No unauthorized attachments may be made to fit the unit. Do not modify the wand. All leaks or malfunctioning equipment must be repaired immediately or the unit taken out-of-service. Polycoated Tyvek or equivalent, steel-toed boots, safety glasses, hard hat with face shield, and inner and outer nitrile gloves will be worn as a minimum.

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- Q. Only briefed, authorized personnel may operate air compressor(s). Follow manufacture's safety and operating instructions. Inspect compressor and components before use. Wear hearing protection if noise level is greater than 85 decibels, A-weighted (dBA). The nozzle must always be pointed at the work area. Never point the end at yourself or other workers. Never use compressed air to clean your body or clothes. Non-operators must remain a safe distance from the operator. No unauthorized attachments may be made to fit the unit. All leaks or malfunctioning equipment must be repaired immediately or the unit taken out-of-service. Report any observed defects or safety hazards to your Supervisor immediately. Goggles/safety glasses with side shield, work gloves, and hearing protection as needed for the activity. Other PPE for the work area as posted.
- R. Open-bladed knives (e.g., box cutters, utility knives, pocket knives, machetes, and multi-purpose tools with fixed blades [i.e., Leatherman]) are prohibited at worksites, except where the following three conditions are met:
- The open-blade knife is determined to be the best tool for the job.
 - An approved Job Hazard Analysis (JHA) or written procedure is in place that covers the necessary safety precautions (work practices, PPE, and training); and
 - Knife users will follow the JHA for knife use.

Specific precautions for knife use include:

- Employees are responsible for using cutting tools in the way they are intended, maintaining them in good working order and reporting faulty or unusable items;
- PPE is to be used as specified in the JHA;
- Personnel engaging and/or supervising subcontractors are to ensure the requirements of this Plan are communicated;
- Items to be cut will be placed on a stable surface;
- Items to be cut should be secured whenever possible, to prevent slippage (e.g., vise, other holding device);
- Personnel will use a work location that does not place their body in the way of a knife slip or failure;
- Personnel will not cut toward themselves while using a knife;
- When cutting, personnel will make the force of the cut carry the blade away from any part of the body;
- **IF** cutting away from the body is not possible, **THEN** a leather apron or other protective material will be worn;
- **IF** performing a task that requires a knife edge but not a sharp point, **THEN** a rounded-tip blade will be used for added protection against puncture wounds;
- In general, pocket knives are not the preferred tool of choice; safer alternatives are to be used (i.e., retracting safety blade);

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- **IF** using a folding knife, **THEN** use one with a locking blade, **AND** do not use it under pressure;
- **IF** using a fixed blade knife, **THEN** ensure it has a handle guard (to prevent hand from slipping forward), **AND** ensure handle is dry and non-greasy/slippery (for better grip);
- Fixed blade knives will be stored in a sheath or holder, when not in use;
- Utility knives will be stored with the blade retracted;
- Knives will not be left unattended with the blade exposed (e.g., on work surfaces, on the floor, on a pallet, in a drawer/cabinet);
- Knives will be kept sharp and in good condition (dull blades require more force, which increase the risk of slips or mistakes);
- Defective knives will not be used;
- Utility knife blades are brittle and can snap easily (no bending them, no applying side loads to them [e.g., prying items loose, opening cans]);
- Utility knives are used to cut only (e.g., not as a hole punch, screwdriver, or pry bar).

In general, cut resistant gloves (i.e., Kevlar) are to be worn when using a knife in an occupational setting. Other types of gloves may be required, as directed.

1.6 Biological Hazards

1.6.1 Identified Biological Hazards

- A. Snakes, spiders, scorpions, coyotes, foxes, antelope, and other wild 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.
- C. Some plants and flowers may cause irritation or can present a puncture or scratch hazard.

1.6.2 Biological Hazard Mitigation

- A. Personnel shall be directed to avoid harassing or disturbing any animals. Under no circumstances shall these animals be fed. Tortoises may be moved from roadways, provided the proper training has been taken. A supervisor should be immediately notified if an employee notices a wild animal continually loitering in a particular area or acting aggressively. The supervisor shall notify E&EM at 702-295-0364, 702-295-0393, 702-295-3338, or 702-295-0365 for wild animal support.

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- B. Personnel shall use caution when putting on protective clothing and when placing hands and feet into crevices and sheltered areas.
- C. Personnel shall be 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-P450.004, "Hantavirus Prevention and Control."

1.7 Noise Hazards

1.7.1 Identified Noise Hazards

- A. Heavy equipment (e.g., earth-moving equipment, compressors, generators, hoe rams, and air spades) is a potential source for hazardous noise.
- B. Working in enclosed trailers with a PIT and/or on platforms; working with PITs within 5 ft.

1.7.2 Noise Hazard Mitigation

- A. Areas with sound levels above 85 dBA will be designated as a hearing protection area in accordance with CD-P450.003, "Hearing Conservation Program."
- B. Sound level survey evaluations are required when new noise-generating work activities are initiated or new equipment is added to the process.
- C. The 3-ft rule is recommended for general guidance during field operations. The 3-ft rule states that if two people standing 3 ft apart must speak in a raised voice to hear each other above the background noise, then hearing protection is warranted.
- D. The following types of hearing protection are required:
 - Single protection at or above 85 dBA action limit
 - Double protection at or above 104 dBA action limit
 - Placing personnel on the Hearing Conservation Program at or above 85 dBA for an 8-hour TWA [time-weighted average]

1.8 Environmental Hazards or Impact to the Environment

1.8.1 Identified Environmental Hazards

- A. Work locations are susceptible to a variety of severe weather events (e.g., damaging winds, lightning, tornadoes, and/or floods) with the potential to damage property, equipment, and adversely affect NSTec operations.
- B. Due to the location of the facility and the nature of the work, extreme high and low temperatures are expected.

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1.8.2 Environmental Hazards Mitigation

- A. Pay attention to early signs of thunderstorms (e.g., high winds, dark clouds, rain, and distant thunder or lightning). Watch for thundercloud formations and/or alerts from the Operations Command Center (OCC) for NNSS.
- Workers are directed to take shelter in a vehicle or a building
 - Personnel are trained to identify hazardous weather conditions in accordance with CD-P280.024, "Inclement Weather Protection (Severe Weather)"
 - Current and forecast weather conditions are verified and monitored with the Air Resources Laboratory, Special Operations and Research Division (ARL/SORD) prior to the start of facility or project activities that are unacceptably impacted by potential lightning hazards (ARL/SORD Weather Forecaster at 702-295-1255)
- B. NSTec has established a lightning proximity threshold boundary (minimum 10 mi) for the RWMC that allows sufficient time to halt work and place personnel and vulnerable assets and/or assemblies in a lightning safe configuration. In addition, the following high winds controls shall also be followed:
- At 20 miles per hour (mph) sustained wind speed, the LLW Supervisor will designate a person to monitor wind speeds using the ARL/SORD website or field monitoring equipment. In the absence of crane manufacturer's instructions regarding maximum wind speeds for operation, a qualified person/supervisor shall evaluate operations undertaken at wind speeds in excess of 20 mph (18 knots = 20 mph) in accordance with CD-G022.004. Aerial lift operations will be terminated based on manufacturers' recommendations, in accordance with CD-P280.024.
 - At 25 mph sustained wind speed, two persons shall be used to open or close all doors (i.e., trailer or Sealand container). To secure doors (i.e., trailer or Sealand container doors), additional means (e.g., bungee cords, ratchet straps or positive latching mechanisms) shall be used in addition to the manufacturer's latching mechanism.
 - At 30 mph sustained wind speed, personnel shall not access any elevated work surface (i.e., flatbed trailer or work platform).
 - At 35 mph sustained wind speed, outdoor operations shall be evaluated by Operations Management, Facility Management, and the Safety Professional to determine if operations can continue based on equipment configuration and current conditions.
 - Sustained wind speed is defined as a period of time lasting 15 min [minutes] or greater.

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- C. Personnel are trained to identify symptoms of heat cramps, heat exhaustion, and heat stroke in accordance with First Aid training and CD-P450.011, "Heat and Cold Stress." Supervisors, employees, and assigned Safety and/or IH Professionals shall monitor employees for signs of heat/cold stress. Employees with heat distress/cold disorder symptoms must notify their supervisors immediately. Some of the actions taken to reduce heat stress are as follows:
- Port-a-coolers may be set up around the work area to create "cool zones"
 - Ice vests may be worn by crew members
 - Shade structures can be set up to provide shade
 - Work schedules may be adjusted to ensure that work is performed during cooler parts of the day. A Heat Index Chart is provided in CD-P450.011 to assist in determining work/rest cycles and to limit potential heat stress conditions.
- D. If flooding occurs, workers shall move to higher ground to get out of areas subject to flooding, including dips, low spots, canyons, and washes. Flooded areas shall be avoided, especially if the water is flowing fast. Workers shall use "Turn Around Don't Drown™" protocols, and shall avoid driving through flooded roadways. Personnel shall be especially cautious at night when it is harder to recognize flooding dangers.

2.0 EMPLOYEE TRAINING

2.1 General

2.1.1 RWMC affected locations include the following:

- A. Waste Disposal Cell
- B. RCRA storage units where hazardous waste is present (WEF [Waste Examination Facility] facilities):
- TRU Pad/TPCB Buildings
 - 05A-6
 - 05A-32 (VERB)
 - SIS
 - DHP

2.1.2 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 such hazards.

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- 2.1.3 Employees are only permitted to participate in or supervise field activities when they have been trained to a level required by their job function and responsibility, or are supervised by a trained and qualified employee. This is tracked by using the List of Qualified Individuals (LOQI). General Site Workers training is recorded and tracked on the LOQI. Unescorted personnel's training is also tracked on the LOQI. Personnel requiring unescorted access to Area 5 require Radioactive Waste Operations (RWO) Access Qualification training. Escorted personnel will need to complete a radiological briefing for all areas, and a security briefing for areas for which it is required. The briefing(s) shall be documented on Form FRM-1508, "Area 3/5 RWMS Access Information Sheet."
- 2.1.4 General Site Workers (such as equipment operators, general laborers, and supervisory personnel) who will engage in hazardous substance removal or other activities that will expose or potentially expose workers to hazardous substances and health hazards shall receive the following training:
- A. A minimum of 40 hours (hr) of Hazardous Waste Operations (HAZWOPER) training, and three days of supervision by a trained, experienced supervisor.
 - B. Annual 8-hr refresher training to maintain HAZWOPER qualifications.

2.2 Escort Requirements

- 2.2.1 Personnel needing access to a location covered under the scope of this HASP who may not meet training and medical requirements may be escorted by an employee who meets the escort requirements, as follows:

Escorts:

- A. Have familiarity with the site, site hazards, and controls.
- B. Have all training and medical requirements for unescorted access to the site.
- C. Ensure that escorted personnel are not exposed to any site hazards.

3.0 PERSONAL PROTECTIVE EQUIPMENT

3.1 Levels of Personal Protective Equipment

- 3.1.1 PPE levels may be upgraded or downgraded as instructed by IH, the SSO, and/or the Health Physicist (HP); PPE specific to all work will be developed consistent with the requirements of CCD-QA05.001. All PPE requirements will be identified in the applicable work documents, posted at work areas, or stipulated in the Pre-Task Hazard Review (PTHR), THWP [Toxic Hazard Work Permit], or RWP. At a minimum, the following program requirements apply:
- A. CD-P280.034
 - B. CD-P450.003
 - C. CD-P450.009, "Respiratory Protection Program"

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3.2 Level D PPE

3.2.1 Level D PPE, at a minimum, is required for all activity level work, excluding designated visitor viewing areas. Level D PPE includes the following:

A. Safety glasses with side shields:

- Protective equipment meeting the requirements of American National Standards Institute/International Safety Equipment Association Standard ANSI/ISEA Z87.1, "American National Standard for Occupational and Educational Personal Eye and Face Protection Devices," shall be provided to employees who are required to wear eye and face protection when machines or operations present potential eye or face injuries.

B. Hard hats (when overhead hazards exist):

- All protective headwear shall meet the requirements of ANSI/ISEA Z89.1, "American National Standard for Industrial Head Protection," Type I or Type II for Class G or Class E headwear.
- Personnel in the cab of equipment or vehicles that are equipped with overhead protection are not required to wear hard hats while inside the cab.

C. Safety shoes:

- Footwear providing protection against impact and compressive forces, conduction hazards, electrical hazards, and sole penetration shall meet the requirements of ANSI Z41, "Personnel Protection—Protective Equipment," to include American Society for Testing and Materials Standard ASTM F2413, "Standard Specification for Performance Requirements for Foot Protection."

D. Work clothing:

- Personnel in non-office work areas shall wear ankle-length pants. Shorts, skirts, dresses, shirts without sleeves, or other such clothing is not permitted. (Modesty garments worn under protective clothing are exempt from this requirement.)

E. Work gloves (when required):

- Appropriate work gloves are determined by specific work requirements and/or the applicable PTHR.

F. Reflective high-visibility clothing (minimum Class II) is required when in the LLW compound and also when doing activity level work not within the LLW compound, such as loading/unloading intermodals and delivery trucks.

NOTE: The radiological extent/level of concern, activity, and location of work will determine PPE requirements.

3.2.2 Level D modified PPE for work in radiological areas includes the requirements for Level D and may include the following:

A. Disposable coveralls (Tyvek or similar)

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- B. Nitrile, neoprene, or other glove liners and outer gloves
- C. Boot covers

3.2.3 Level D modified PPE requirements for Hot Work are in accordance with CD-P280.030, "Hot Work," for tasks such as welding, cutting, brazing, or grinding operations.

3.3 Level C PPE

3.3.1 Due to the presence of radioactive contamination and other hazardous materials, it is anticipated that PPE that is more protective than Level D will be required. The radiological contamination or hazardous material levels of concern will determine PPE requirements. Planning specific to the activity will develop appropriate PPE depending on the activity, location, and extent/level of radiological contamination and hazardous materials. Level C PPE includes the requirements for Level D PPE and may include the following:

- A. Full or half-face air purifying respirator equipped with particulate and/or chemical cartridges
- B. Powered air purifying respirators equipped with particulate and/or chemical cartridges
- C. Supplied air for particulates and other materials/chemicals with known exposure limits and properties

3.4 Levels A and B PPE

3.4.1 Work is not expected to require Level A or B PPE. Monitoring requirements will be established in conjunction with work planning to validate that the specified controls and PPE provided are adequate for work being performed, and that the controls and PPE remain adequate. If conditions or hazardous material levels indicate the need for better controls or additional PPE, work will be suspended, hazards will be reevaluated, and controls and PPE will be modified as appropriate.

- A. SAR [Supplied Air Respirator] with escape cylinder or SCBA [self-contained breathing apparatus] may be required for particulates and other materials/chemicals with known exposure limits and properties.

3.5 Hearing Protection

3.5.1 Hearing protection and hearing conservation will be implemented consistent with the requirements of CD-P450.003. Those personnel who are subject to hearing conservation requirements will be identified by IH (i.e., heavy equipment operators). Personnel will apply the 3-ft rule. If it is difficult to carry on a conversation with personnel within 3 ft due to noise, then hearing protection should be worn. If personnel have any concerns related to ambient noise and the need for hearing protection, then they are to notify the SSO or IH, and noise surveys will be completed, as required.

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- 3.5.2 Hearing protection must be worn as prescribed by the manufacturer. If ear insert hearing protection is used, it should be tested for proper fit. Testing for fit is performed by covering the ears after the protectors have been inserted. The noise levels should drop or sound fainter when the ears are cupped by the hands.

4.0 MEDICAL SURVEILLANCE

- 4.1 The NSTec Medical Surveillance Program is defined in Company Plan PLN-1025, "Occupational Medicine Program," which meets the requirements of 29 CFR 1910.120. This program recognizes and evaluates the potential health effects caused by exposure to various materials an employee may encounter at the NNSS. The program assists in the 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 E&WM personnel perform air and exposure monitoring for environmental surveillance at various NNSS locations. Samples are collected by E&WM from strategic locations within the site to obtain information relative to ambient air conditions. The Environmental Surveillance program monitors the NNSS 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. NNSS air and groundwater monitoring results are reported to NNSA/NFO in the Annual Site Environmental Impact Report, the National Emissions Standard for Hazardous Air Pollutants Report, and the Annual Groundwater Monitoring Report.
- 5.3 Continuously operated samplers are positioned around the Area 5 RWMC. The samples that are collected are analyzed for gross alpha, gross beta, plutonium, americium, gamma radiation, and tritium. TLDs [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/m²/s [picocurie/square meter/second]. The actual Radon flux is well below this performance objective.

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6.0 SITE CONTROL

- 6.1 Site control prevents unauthorized, untrained, or unprotected personnel or visitors from being exposed to the hazards associated with the sites. Site control measures will include the following:
- A. The Hazardous Waste locations are fenced and secured.
 - B. Project and support personnel may enter the site through authorized access points. Visitors will enter the site through the primary access point only.
 - C. The Personnel Accountability access register will be used by all personnel and visitors.
 - D. All visitors to the site will schedule visits through the NFM or designee prior to arrival.
 - E. Visitors shall print names, sign, time in, and time out using the visitor control log.
 - F. RWO Access Qualification training is the minimum training for unescorted access to the RWMC. Radiological and/or security briefings, and a HASP briefing, as needed, will be given and documented; and required PPE will be loaned, as needed. Radiological conditions are posted, as required.
 - G. Signage and/or barriers will communicate information such as radiological hazards and required PPE.
 - H. The site will be secured at the end of each shift.

6.2 Work Zones

- 6.2.1 Work zones will be clearly marked with rope, banner tape, fencing, or other high visibility markings and signs. The following work zones will be established:
- A. Exclusion Zone (EZ) (Hot Zone) – Only personnel with the proper training and equipment will be permitted in the EZ. This is the zone where contact with hazardous and/or radioactive substances is possible. Often PPE and/or respirators will be required in this zone.
 - B. Contamination Reduction Zone (CRZ) (Warm Zone) – CRZs are corridors through which all personnel enter and exit the EZ. The CRZ serves as a boundary to minimize the spread of contamination and limit radiological dose to collocated workers and untrained personnel. CRZs contain “step-off pads” for personnel whole body radiological frisking and chemical decontamination.
 - C. Support Zone (Cold Zone) – The support zone is a clean area where support activities take place, such as storage of supplies and equipment. The command post is located here.
 - D. During work and/or after demolition of the facilities, areas may require radiological postings per the RCT and/or HP direction.

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6.2.2 To ensure the safety and health of collocated workers and the public is not in question, the boundaries and locations of the work zones are subject to change based on air sampling/monitoring results and potential exposure to chemical, radiological, or safety hazards.

6.3 Buddy System

6.3.1 All work that requires personnel to directly handle, sample, or transport hazardous material, hazardous waste, or waste containers requires the use of the buddy system. The responsibilities of workers include the following:

- A. Providing coworkers with routine and emergency assistance
- B. Observing coworkers for signs of chemical or heat stress exposure
- C. Periodically checking the integrity of coworkers' PPE
- D. Notifying others of emergency help, if needed

6.3.2 In addition, any work requiring greater than Level D protection requires use of the buddy system. At no time shall any worker enter the CA [contamination area]/EZ, HCA [high-contamination area]/EZ, or CRZ without the use of the buddy system.

6.4 Communication

6.4.1 Radios programmed to the RWMS talk group will be used for communication at RWMC facilities. NNSS personnel, including emergency responders, will be able to be reached in case of injury. In addition, telephones will be available on site. Field radios are the primary communication tool.

6.4.2 Due to the small work areas within most of the facility, and the requirement of the "buddy system" during work activities, face-to-face communications among workers will be generally maintained. Hand signals may also be used due to respiratory protection vocal communication difficulty. Personnel will be briefed on their use at the daily/shift pre-job meetings. Site radios can also be used for communicating with workers in the posted areas of the project, as needed. At the RWMC, all workers are required to carry a working radio at all times.

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

6.4.4 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.

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

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

- A. Site map
- B. Site work zones
- C. The use of a “two-man rule”
- D. Site communications, including alerting means for emergencies
- E. SOPs or safe work practices
- F. Identification of the nearest medical assistance

7.0 DECONTAMINATION

Personnel and equipment contamination prevention techniques will be used whenever feasible. Personnel will avoid unnecessary contact with potentially contaminated material. Heavy equipment will be operated in a manner that limits the spread of contamination or potentially contaminated material.

7.1 Personnel Decontamination

7.1.1 PPE requirements and personnel decontamination procedures will be addressed in the RWP(s). There is a decontamination shower located in the CAAB [Controlled Area Access Building] 05A-31. Mobile trailers containing offices, PPE, change rooms, and radiological decontamination capabilities are deployed to areas of potential contamination, as needed.

7.2 Equipment Decontamination

7.2.1 Material and equipment may require decontamination prior to release from the EZ and prior to free release from the NNSS to off-site locations. At the discretion of the Project Manager, equipment may be decontaminated in the field or transferred to a Decontamination Facility. Depending on the location and extent of contamination, and the purpose of the decontamination, one or more of the following methods may be used:

- A. Spraying potable water at low pressure
- B. Spraying potable water at high pressure and high temperatures
- C. Scraping and brushing
- D. Power brushing
- E. Scrubbing with approved decontamination solutions
- F. Wiping with pre-moistened, non-alcohol-based wipes
- G. Rinsing with deionized water
- H. Abrasive removal
- I. Component removal

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- 7.2.2 Decontamination effectiveness will be determined by visual inspection, radiological surveys, VOC [volatile organic compound] monitoring, and/or swipe sample results, as required.
- 7.2.3 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 the 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 NSTec performance documents.

7.3 Management of Decontamination Liquids and Incidental Waters

- 7.3.1 Liquids generated during decontamination will either be evaporated in lined sumps or placed in drums, which will also hold any incidental water pumped from the site. These liquids will be dispositioned according to Waste Generator Services procedures and the NNSW WAC and guidelines. If a decontamination pad is constructed, the plastic liner will be radiologically surveyed upon completion of activities and disposed at an appropriate disposal facility. Sump liners will be visually inspected to ensure they are not damaged or torn, and the area will be posted appropriately per the RCT or HP direction.

7.4 Soil Contamination

- 7.4.1 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 EPIP-RWMC.001, in conjunction with 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 [emergency plan implementing procedure] 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:
- A. Natural phenomena (earthquake, flood, or wind storm)
 - B. Law enforcement-type events (civil disorder/riot, or sabotage/malevolent acts and work place violence/active shooter)
 - C. Accidents (aircraft, chemical, biological, and/or hazardous material)
 - D. Fires/explosions
 - E. Suspicious mail/suspicious packages

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- F. Bomb threats
- G. Power failures

8.2 Emergency Response Personnel

- 8.2.1 Once an emergency has occurred, the NFM/Facility Owner (for facility events) or other qualified individual assumes the role of Local Emergency Director (LED) and is responsible for initial response, mitigating the event at the scene, and implementing applicable emergency plans and procedures. During an Operational Emergency, the LED is relieved of emergency management decision making, with the exception of categorization and classification as applicable, by the arrival of a Senior Fire Officer, and becomes a member of the unified Incident Command System. The Senior Fire Officer assumes the role of Incident Commander. If a security emergency has been declared, the Senior Fire Officer becomes a member of the unified Incident Command System, and Centerra-Nevada personnel act as the Incident Commander.

8.3 Notifications

- 8.3.1 Accident and incident reporting will be conducted in accordance with CD-P280.007, "Accident/Incident Notifying, Investigating, and Reporting." In the event of an emergency (e.g., significant injury or illness, fatality, serious property damage, or spill), the OCC will be notified, and NNSS emergency responders will be contacted at 911.
- 8.3.2 Initial discovery and reporting of an emergency or abnormal event is essential to completing the proper response, assessment, and mitigation actions. All site personnel are responsible for reporting emergencies, abnormal events, uncontrolled releases, or unusual incidents that could impact the safety and health of project personnel, collocated workers, the public, or the environment.
- 8.3.3 The individual who discovers an emergency or abnormal event shall report the condition to the LED or the SSO, as applicable, and as follows:
- A. Life-Threatening Situations – In case of a life-threatening emergency, NNSS emergency services must be notified. NSTec maintains an emergency response telephone number of 911 at the NNSS, which may be reached from onsite radios by pressing the orange button or by dialing 911 from any site telephone. Either option will immediately connect the caller with the NNSA Fire Department or the Central Alarm Station. Calling "911" will also be used when the facts of the situation are not fully known. On a site radio, contact "Bird Dog" or press the (orange) "emergency button" and say "Mayday, Mayday, Mayday." A call from a personal mobile phone is routed to Beatty, Nevada. The caller must tell the dispatcher that they are calling from the NNSS in order to have the call routed to the dispatcher on site.
 - B. Non-Life-Threatening Situations – Individuals will notify the LED or the SSO for non-life-threatening situations.

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- 8.3.4 The table below lists project personnel who will be notified in the event of any spill, release, employee contamination, accident, or natural disaster. This list will be posted next to telephones and at prominent locations at the RWMC. Facility personnel must be notified of any revision to the list.

RWMC Contact List			
Employee Name	Title	Phone	Mobile
McCullough, Michael	Division Manager	702-295-5876 (NNSS)	702-324-2554
Frenette, Doug	Waste Operations Manager	702-295-0620	702-528-0495
Tanaka, Jon	LLW/WEF Supervisor	702-295-2870	702-335-3958
Hergert, Tom	NFM	702-295-1718	720-936-3262
Yonko, Jon	Alternate NFM	702-296-4644	702-506-7144
Russell, Wade	E&WM Safety Manager	702-295-7611	720-341-4585
Bounds, Bradley	Health Physics Supervisor	702-295-4506	702-606-8975

8.4 Personnel Accountability

- 8.4.1 Personnel accountability is accomplished using sign-in sheets, and the visitor control log, by signing in upon arrival and signing out prior to departing a facility.

8.5 Site Evacuation

- 8.5.1 The NFM/Facility Owner (for facility events) or other qualified individual assumes the role of the LED and is responsible for initial response, mitigating the event at the scene, and implementing applicable emergency plans and procedures. Based on the nature and severity of the situation, there are at least two ways that each facility can be evacuated:
- A. Immediate Evacuation – Personnel will immediately evacuate the site. Site radios will be used to communicate an immediate evacuation. Personnel inside a structure shall egress via the nearest exit without stopping, frisking, or decontamination.
 - B. Controlled Evacuation – Site radios will be used to communicate a controlled evacuation. Non-essential personnel inside a structure shall egress following normal exit means, including personal frisking and decontamination.
- 8.5.2 The LED should determine the AEAA [Alternate Emergency Assembly Area] based on event conditions (e.g., plume model, upwind, threat). Regardless of the type of evacuation, the Incident Commander will be notified and all personnel will proceed to the designated assembly area and will be accounted for. The RWMC assembly area is shown in Figure 8-1, "Area 5 RWMC Assembly Area." Maps will be posted in prominent locations at the RWMC.

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Figure 8-1. Area 5 RWMC Assembly Area

8.6 Temporary Field Trailers

- 8.6.1 If temporary field trailers are used at the RWMC, management of the trailers will be required. Installation of the trailers and stairways will comply with NNSC standards. Egress aisles leading to discharge points from the exits will be kept clear at all times. Signs will mark the exit doors, and doors which are not exits will be clearly marked. Housekeeping will be maintained at a high standard. Monthly inspections will be performed by the SSO or designee.

8.7 Medical Support

- 8.7.1 Occupational Medicine in Building 23-650 (Mercury Medical Facility) and the NNSC Fire Department facilities (Area 6 Aid Station), as shown in Figure 8-2, "Site Map Showing Facilities and Emergency Response Locations," will be used for medical injuries and emergencies. Depending on the seriousness of the injury, injured personnel may also require care by an off-site hospital. The need for off-site care will be determined by the NNSC Fire Department or by Occupational Medicine.
- 8.7.2 The NNSC Fire Department will be called at 911 if there is a serious injury or illness to personnel, or for any other emergencies. When a medical facility or physician is not accessible within five minutes of a group of two or more workers for the treatment of injuries, at least two employees on each shift shall be qualified to administer first aid and/or the Cardiopulmonary Resuscitation/Automated External Defibrillator. Qualified employees shall have received blood-borne pathogens training, and shall be assigned a first aid kit.

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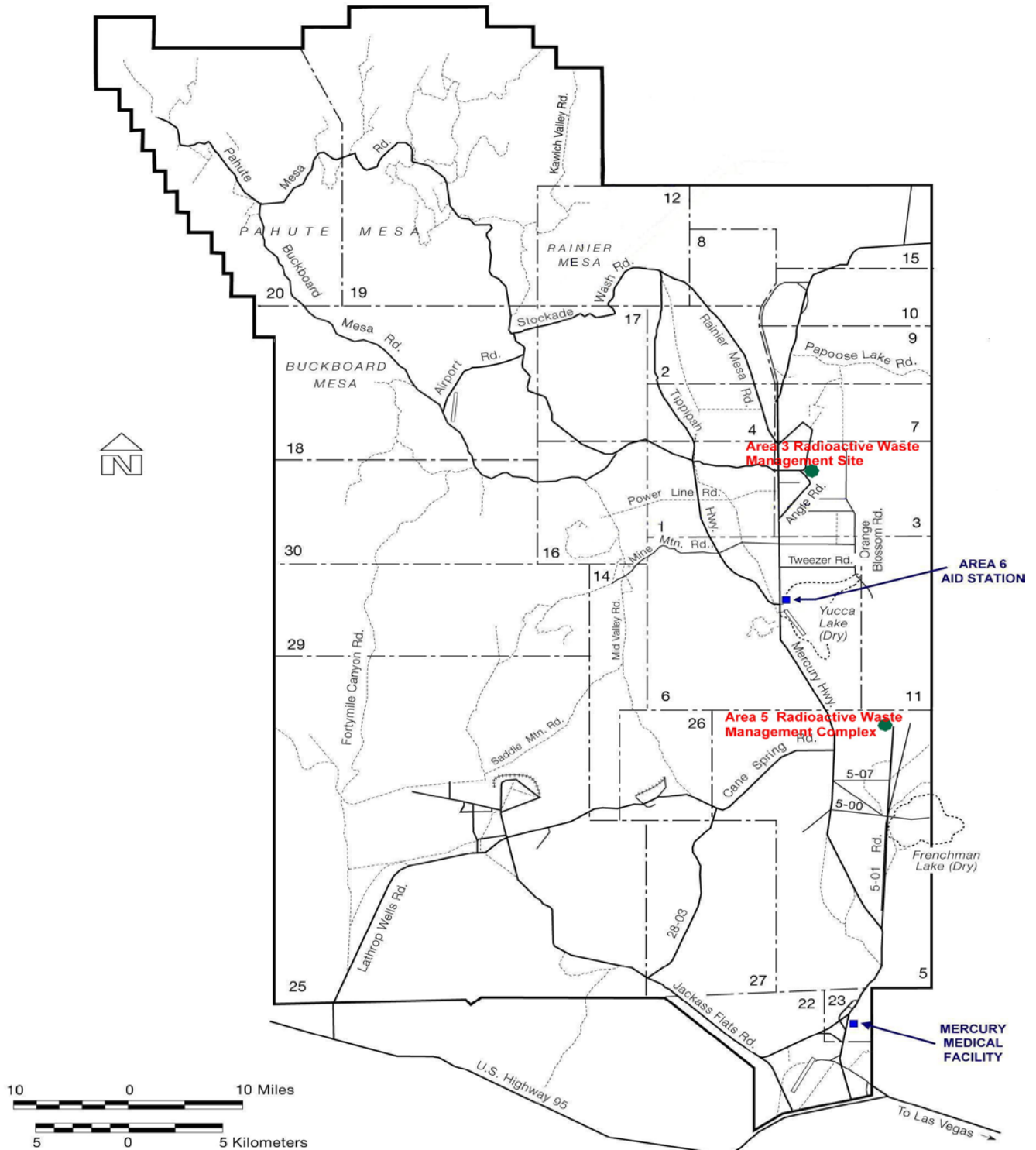


Figure 8-2. Site Map Showing Facilities and Emergency Response Locations

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9.0 CONFINED SPACE

- 9.1 Personnel are not anticipated to be required to enter into a permit-required confined space during routine operations at the RWMC. If confined space entry or work should become necessary, a properly completed and approved entry permit will be obtained according to the requirements of CD-P450.010, "Confined Space Entry." IH maintains a database of all identified confined spaces at the NNSS. Permit-required confined space entry work shall be completed under a specific work package. Employees are required to have confined space entry training prior to entering a confined space. Training will be tracked using the RWMC LOQI. If confined spaces are not properly labeled, the NFM and SSO should be contacted so that a determination can be made on the space and the hazard can be properly labeled. A master unit inventory of NSTec-controlled confined spaces is tracked by the Confined Space Program Coordinator at S:\NTS\Share\Confined Space Inventory.
- 9.2 CD-P450.010 defines a confined space, and the requirements for entry into a confined space. The following rules apply to confined spaces:
- 9.2.1 Confined spaces include, but are not limited to, the following:
- A. Tanks
 - B. Pits
 - C. Voids
 - D. Vaults
 - E. Elevator pits
 - F. Cooling towers
- 9.2.2 CD-P450.010 applies to excavations, particularly those over landfills and waste sites with known, unknown, and unclassified chemical hazards.
- 9.2.3 Subcontractors performing work in confined spaces must be qualified according to CD-P450.010 or have an accepted confined space program that meets the requirements of 29 CFR 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 LED establishes initial protective actions in accordance with Initial Response Guide IRG-2120.002, "NNSS Initial Response Guide." The initial response to any spill would be to protect human safety and health. Identification, containment, treatment, and disposal will be the secondary response. Actions in response to controlling and reporting spills and material releases shall be consistent with the provisions outlined in CD-P410.009, "Spill Reporting and Control."