Nevada
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Project

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National Nuclear Security Administration

Addendum to the Closure Report for Corrective Action Unit 484: Surface Debris, Waste Sites, and Burn Area, Tonopah Test Range, Nevada

Controlled Copy No.: ___
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ADDENDUM TO THE CLOSURE REPORT FOR CORRECTIVE ACTION UNIT 484: SURFACE DEBRIS, WASTE SITES, AND BURN AREA, TONOPAH TEST RANGE, NEVADA

U.S. Department of Energy
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Las Vegas, Nevada

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ADDENDUM TO THE CLOSURE REPORT FOR CORRECTIVE ACTION UNIT 484: SURFACE DEBRIS, WASTE SITES, AND BURN AREA, TONOPAH TEST RANGE, NEVADA

Approved by: /s/ Kevin J. Cabble Date: 03/08/2011

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List of Acronyms and Abbreviations

Ac	Actinium
bgs	Below ground surface
CD	Certificate of disposal
CAS	Corrective action site
CAU	Corrective action unit
COC	Contaminant of concern
COPC	Contaminant of potential concern
DU	Depleted uranium
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
FAL	Final action level
FD	Field duplicate
FFACO	*Federal Facility Agreement and Consent Order*
ft	Foot
in.	Inch
LLW	Low-level waste
m	Meter
MEC	Munitions and explosives of concern
mrem	Millirem
NA	Not available
NAD	North American Datum
NNSA/NSO	U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office
NNSS	Nevada National Security Site
PAL	Preliminary action level
pCi/g	Picocuries per gram

List of Acronyms and Abbreviations *(Continued)*

PPE	Personal protective equipment
PRG	Preliminary Remediation Goal
RCT	Radiological control technician
RSL	Remote Sensing Laboratory
RWMS	Radioactive waste management site
SAFER	Streamlined Approach for Environmental Restoration
SUXOS	Senior Unexploded Ordnance Supervisor
TTR	Tonopah Test Range
U	Uranium
UR	Use restriction
URMA	Underground radioactive material area
UTM	Universal Transverse Mercator
UXO	Unexploded ordnance
UXOSO/QC	Unexploded Ordnance Safety Officer/Quality Control Specialist
yd^3	Cubic yard

1.0 Basis for Current UR

Corrective Action Unit (CAU) 484 Streamlined Approach for Environmental Restoration (SAFER) activities called for the identification and remediation of surface hot spot depleted uranium (DU) with some excavation to determine the vertical extent of contamination (NNSA/NSO, 2004). During the CAU 484 SAFER investigation (conducted November 2003 through August 2007), approximately 50 locations containing DU were identified on Antelope Lake. All but four locations (CA-1, SA-5-9, SA-12-15, and SA-4) were remediated. Figure 1-1 shows locations of the four use restriction (UR) sites.

The four locations were determined to have failed the SAFER conceptual site model assumption of a small volume hot spot. Two of the locations (CA-1 and SA-5-9) were excavated to depths of 3.5 to 7 feet (ft) below ground surface (bgs), and a third location (SA-12-15) with a footprint of 30 by 60 ft was excavated to a depth of 0.5 ft. At the fourth site (SA-4), the discovery of unexploded ordnance (UXO) halted the excavation due to potential safety concerns. Remediation activities on Antelope Lake resulted in the removal of approximately 246 cubic yards (yd^3) of DU-impacted soil from the four UR sites; however, Kiwi surveys confirmed that residual DU contamination remained at each of the four sites. (The Kiwi was a Remote Sensing Laboratory [RSL] vehicle equipped with a data-acquisition system and four sodium iodide gamma detectors. Surveys were conducted with the vehicle moving at a rate of approximately 10 miles per hour with the gamma detectors positioned 14 to 28 inches [in.] above the ground surface [NNSA/NSO, 2004]).

The following subsections provide a summary of the UR boundaries as identified during the 2007 SAFER activities (NNSA/NSO, 2004). For additional information regarding the 2010 UR Modification excavation boundaries, see Table 3-2.

CA-1

An area measuring approximately 15 by 20 ft was excavated to a depth of 7 ft. Kiwi surveys identified areas of elevated readings indicating additional potential surface and/or subsurface DU contamination from the southeast edge of the excavation extending out approximately 20 ft. The surface area identified by the Kiwi was remediated by scraping and/or excavating the area to a depth of 0.5 ft bgs. The contaminated soil was placed into the larger excavation. The entire excavation was

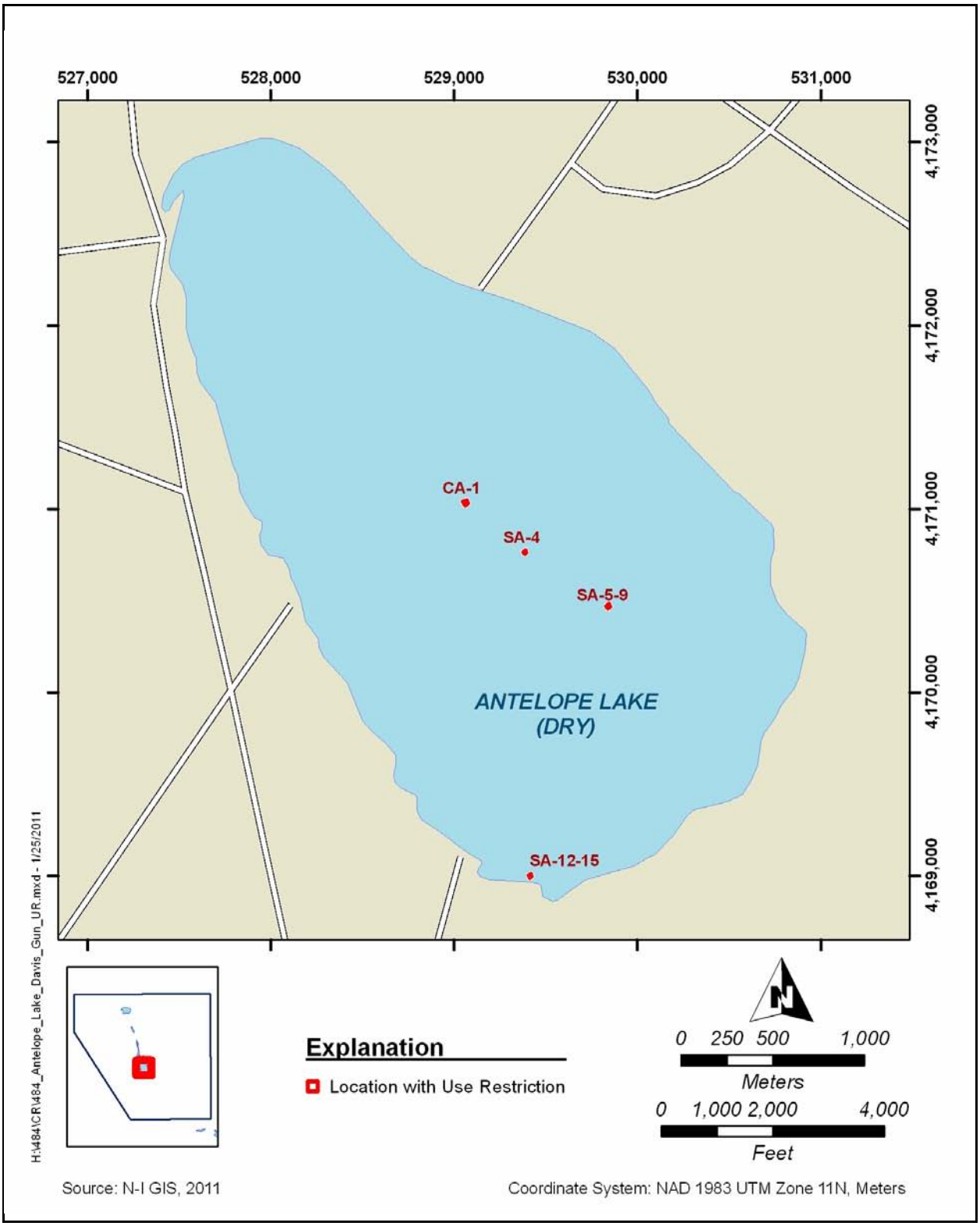

Figure 1-1
Correction Action Site RG-52-007-TAML, Davis Gun Penetrator Test
Locations of UR Areas

then backfilled with clean fill and compacted to surface grade. The surface area was confirmed clean by a final Kiwi drive-over survey. The area containing subsurface DU contamination was surveyed and posted with UR warning signs, and a UR was implemented (NNSA/NSO, 2004).

SA-5-9

An area measuring approximately 30 by 35 ft was excavated to a depth of 3.5 ft. Residual DU contamination was detected only within the excavation. The excavation was backfilled with clean fill and compacted to surface grade. The area containing subsurface DU contamination was surveyed and posted with UR warning signs, and a UR was implemented (NNSA/NSO, 2004).

SA-12-15

An area measuring approximately 30 by 60 ft was excavated to a depth of 0.5 ft. Kiwi surveys identified a subsurface area within the excavation and two isolated locations on the edge of the excavation with elevated readings, indicating additional possible surface and/or subsurface DU contamination. The areas were remediated by scraping and/or excavating the area to a depth of 0.5 ft bgs. Contaminated material was transported to, and placed into, the CA-1excavation. The entire excavation was then backfilled with clean fill and compacted to surface grade. The surface area was confirmed clean by a final Kiwi drive-over survey. The area containing subsurface DU contamination was surveyed and posted with UR warning signs, and a UR was implemented (NNSA/NSO, 2004).

SA-4

Remediation/excavation activities were halted at this site due to the discovery of UXO and other debris not in the scope of CAU 484. The excavation was approximately 15 by 5 ft and approximately 2 ft deep. Kiwi surveys identified areas of elevated readings indicating possible surface and/or subsurface DU contamination at the north, east, and south edges of the excavation. The areas marked for surface contamination were remediated by scraping and/or excavating the area to a depth of 0.5 ft bgs. Contaminated material was placed into the larger excavation. The entire excavation was backfilled with clean fill and compacted to surface grade. The surface area was confirmed clean by a final Kiwi drive-over survey. The area containing subsurface DU contamination was surveyed and posted with UR warning signs, and a UR was implemented (NNSA/NSO, 2004).

2.0 Proposed Modification

Based on the results of recent UR Modification activities at Corrective Action Site (CAS) RG-52-007-TAML, no further corrective actions are necessary for CAU 484. The U.S. Department of Energy (DOE), National Nuclear Security Administration Nevada Site Office (NNSA/NSO) provides the following recommendations:

- No further corrective action is required at CAS RG-52-007-TAML. Based on the remediation of DU-contaminated soil, munitions and explosives of concern (MEC) survey and inspection results, and analytical results of the verification samples collected at this CAS, MEC has been adequately removed to a high degree of confidence; DU-contaminated soil has been remediated; and no contaminants of concern (COCs) remain in the soil at this CAS. Therefore, additional corrective action is not required at this CAS.

- The CAU 484 site has been clean closed. If future wastes related to DOE activities are identified, the DOE is responsible for working with regulators as needed to revise or renegotiate any closure agreements, and/or remediation action for CAU 484, consistent with its responsibilities under applicable law.

- No Corrective Action Plan is required for CAU 484.

- A Notice of Completion is requested from Nevada Division of Environmental Protection for the closure of CAU 484.

- Move CAU 484 from Appendix III to Appendix IV of the FFACO. Remove all postings as well as inspection and maintenance requirements.

3.0 Basis for UR Modification

From July through September 2010, activities to achieve clean closure of the four UR sites at CAS RG-52-007-TAML were conducted. Closure activities were approved in accordance with the memorandum titled "Approval of Plan to Clean Close CAU 484 Corrective Action Unit (CAU) 484: Surface Debris, Waste Sites, and Burn Area (TTR) *Federal Facility Agreement and Consent Order"* from Mr. T.H. Murphy to Mr. R.F. Boehlecke, dated May 27, 2010 (see Appendix A). Clean closure activities included the following:

- Remediation of DU-contaminated soil
- Clearance of MEC at each site
- Disposition of contaminated soil and MEC
- Confirmation sampling
- Backfill

Personnel qualifications were in accordance with the U.S. Department of Defense Explosives Safety Board Technical Paper 16 (DoD, 2009). The UXO team consisted of a Senior Unexploded Ordnance Supervisor (SUXOS), Unexploded Ordnance Safety Officer/Quality Control Specialist (UXOSO/QC) UXO Technician III (Team Lead), and one or two UXO Technician II personnel. The UXO Technicians were Explosive Ordnance Disposal (EOD) School trained with at least five years military EOD and/or civilian experience. This requirement provided a team of well-trained and experienced UXO personnel for the CAU 484 project.

The UR locations were easily identified on Antelope Lake at the Tonopah Test Range (TTR), as they were well marked and posted with UR warning signs, and as Underground Radioactive Material Areas (URMAs) (Figure 3-1). Each of the four locations was investigated by removing the soil caps (Figure 3-2), and then excavating a pothole at the center of the posted area and then working outward. Excavation continued until there was no additional visible indication of DU-contaminated soil or MEC, and all four sidewalls and the bottom of the excavation was native soil. See Figure 1-1 for locations of the four UR sites on Antelope Lake. Excavation was performed using a tracked excavator with a 3-yd^3 bucket.

07/15/2010

Figure 3-1
Site Setup of Heavy Equipment and Waste Container at CA-1 Site

07/19/2010

Figure 3-2
Removal of Soil Cap at CA-1 Site

Excavated soil was spread out onto the ground in a thin layer (4 to 6 in.) with the excavator bucket and then walked over by the Radiological Control Technician (RCT) and UXO technicians using the appropriate instrumentation. Soil was screened for radiological contamination using an NE Electra with DP6BD probe, and for MEC/UXO using analog magnetometers (Figure 3-3). Soil with radiological readings exceeding background levels was packaged as low-level waste (LLW).

Figure 3-3
UXO Technician Using Analog Magnetometer To Check for UXO in Waste Container

The DU contamination was readily visible, hard crusty material and in localized vein-like areas (Figure 3-4) within the excavation. The contaminated soil was excavated and placed directly into waste packages (Figures 3-5 and 3-6). Each layer or lift of soil placed into the waste package was also screened for MEC using analog magnetometers. Each excavation was cleared of DU-contaminated soil and MEC until the sides and bottom of the excavation were composed of native soil. Verification soil samples were also collected from biased locations on the sidewalls and bottoms of each excavation. Verification samples were analyzed for explosives, metals, gamma-emitting radionuclides, and isotopic uranium (U). The sample identifications, locations, types, and analyses are listed in Table 3-1.

Figure 3-4
"Vein-Like" DU Contamination in Excavation at CA-1 Site

Figure 3-5
DU Soil Contamination in Excavation at CA-1 Site

Figure 3-6
Close-up of DU Soil Contamination at CA-1 Excavation

Clean spoils piles were returned to the excavation as backfill. Daily function testing was performed on all magnetometers each day before use. Simulated items the size of the smallest known ordnance items (BLU-26 and 40-mm grenade) were placed at depths below grade, and on the surface in a test grid. Each magnetometer to be used that day was required to be able to detect all items; failure to detect all items indicated that the instrument was not functioning properly, and it was removed from service until repaired or replaced.

Table 3-2 presents a summary of the UR boundaries and extent of the excavation as identified during the 2007 SAFER activities and the 2010 UR Modification excavation boundaries. An additional 315 yd^3 of DU-contaminated soil was removed during the remediation activities performed in 2010.

Table 3-1
Samples Collected at CAS RG-52-007-TAML
(Page 1 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Matrix	Purpose	Explosives	Gamma Spectroscopy	Metals	Uranium
484J001	CA-1 Bottom middle of excavation	10.0	Soil	Environmental	X	X	X	X
484J002	CA-1 West wall of excavation	5.0 - 7.0	Soil	Environmental	X	X	X	X
484J003	CA-1 East wall of excavation	5.0 - 7.0	Soil	Environmental	X	X	X	X
484J004	CA-1 North wall of excavation	5.0 - 7.0	Soil	Environmental	X	X	X	X
484J005	CA-1 Bottom SW corner of excavation	10.0	Soil	Environmental	X	X	X	X
484J006	CA-1 West wall of excavation	5.0 - 7.0	Soil	Environmental	X	X	X	X
484J007	CA-1 South wall of excavation	5.0 - 7.0	Soil	Environmental	X	X	X	X
484J008	CA-1 East wall of excavation	5.0 - 7.0	Soil	Environmental	X	X	X	X
484J009	CA-1 composite sample from spoils pile	4.0 - 6.0	Soil	Environmental	X	X	X	X
484J010	SA-4 Bottom middle of excavation	4.0	Soil	Environmental	X	X	X	X
484J011	SA-4 East wall of excavation	2.0 - 3.0	Soil	Environmental	X	X	X	X
484J012	SA-4 South wall of excavation	2.0 - 3.0	Soil	Environmental	X	X	X	X
484J013	SA-4 North wall of excavation	2.0 - 3.0	Soil	Environmental	X	X	X	X
484J014	SA-4 West wall of excavation	2.0 - 3.0	Soil	Environmental	X	X	X	X
484J015	SA-5-9 South wall of excavation	3.0 - 4.0	Soil	Environmental	X	X	X	X
484J016	SA-5-9 Bottom center of excavation	5.0 - 6.0	Soil	Environmental	X	X	X	X
484J017	SA-5-9 East wall of excavation	3.0 - 4.0	Soil	Environmental	X	X	X	X

Table 3-1
Samples Collected at CAS RG-52-007-TAML
(Page 2 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Matrix	Purpose	Explosives	Gamma Spectroscopy	Metals	Uranium
484J018	SA-5-9 North wall of excavation	3.0 - 4.0	Soil	Environmental	X	X	X	X
484J019	SA-5-9 West wall of excavation	3.0 - 4.0	Soil	Environmental	X	X	X	X
484J020	SA-5-9 West wall of excavation	3.0 - 4.0	Soil	FD of 484J019	X	X	X	X
484J021	SA-12-15 North wall of excavation	2.5 - 3.5	Soil	Environmental	X	X	X	X
484J022	SA-12-15 West wall of excavation	2.5 - 3.5	Soil	Environmental	X	X	X	X
484J023	SA-12-15 South wall of excavation	2.5 - 3.5	Soil	Environmental	X	X	X	X
484J024	SA-12-15 East wall of excavation	2.5 - 3.5	Soil	Environmental	X	X	X	X
484J025	SA-12-15 East wall of excavation	2.5 - 3.5	Soil	FD of 484J024	X	X	X	X
484J026	SA-12-15 Bottom middle of excavation	4.0 - 4.5	Soil	Environmental	X	X	X	X
484A001	CA-1 composite sample from spoils pile	0.0 - 0.5	Soil	Environmental	--	X	--	--
484J301	SA-12-15 excavation area	NA	Water	Field Blank	X	X	X	X
484J302	Water truck located at the CA-1 excavation area	NA	Water	Source Blank	X	X	X	X
484A501	Sample from excavator bucket from CA-1 site, soil placed into waste package 484143	2.0 - 8.0	Soil	Waste Management	--	X	--	--
484A502	Sample from excavator bucket from CA-1 site, soil placed into waste package 484023	7.0 - 8.0	Soil	Waste Management	--	X	--	--
484A503	Sample from excavator bucket from CA-1 site, soil placed into waste packages 484024 and 484065	5.0 - 8.0	Soil	Waste Management	--	X	--	--

Table 3-1
Samples Collected at CAS RG-52-007-TAML
(Page 3 of 3)

Sample Number	Sample Location	Depth (ft bgs)	Matrix	Purpose	Explosives	Gamma Spectroscopy	Metals	Uranium
484A504	Sample from excavator bucket from CA-1 site, soil placed into waste packages 484140 and 484150	4.0 - 8.0	Soil	Waste Management	--	X	--	--
484A505	Sample from excavator bucket from CA-1 site, soil placed into waste packages 484139 and 484144	5.0 - 8.0	Soil	Waste Management	--	X	--	--
484A506	Sample from excavator bucket from CA-1 site, soil placed into waste packages 484139 and 484144	5.0 - 8.0	Soil	Waste Management FD of 484A505	--	X	--	--
484A507	Sample from excavator bucket from CA-1 site, soil placed into waste package 484084	8.0 - 10.0	Soil	Waste Management	--	X	--	--
484A508	Composite sample from waste package 484084	NA	Soil	Waste Management	X	--	--	--
484A509	Composite sample from waste package 484017	NA	Soil	Waste Management	X	--	X	--
484A510	Composite sample from SA-4 spoils pile	0.0 - 0.5	Soil	Waste Management	--	X	--	--
484A511	Composite sample from waste package 484004	NA	Soil	Waste Management	X	--	X	--
484A512	Composite sample from SA-5-9 spoils pile	0.0 - 0.5	Soil	Environmental	--	X	--	--
484A513	Composite sample from SA-12-15 spoils pile	0.0 - 0.5	Soil	Environmental	--	X	--	--
484A514	Composite sample from SA-12-15 spoils pile	0.0 - 0.5	Soil	Environmental FD of 484A513	--	X	--	--

FD = Field duplicate
N/A = Not applicable

Table 3-2
UR Excavation Summary

UR Site Designation	Current UR Excavation Boundaries[a]	Volume of Soil Excavated[a] (yd^3)	UR Modification Excavation Boundaries[b]	Volume of Contaminated Soil Removed[b] (yd^3)
CA-1	15 wide x 20 long x 7 ft deep	98	44 wide x 50 long x 10 ft deep	285
SA-5-9	30 wide x 35 long x 3.5 ft deep	98	45 wide x 42 long x 6 ft deep	10
SA-12-15	30 wide x 60 long x 0.5 ft deep	36	39 wide x 60 long x 5 ft deep	0
SA-4	15 wide x 5 long x 2 ft deep	14	43 wide x 24 long x 4 ft deep	20

[a]SAFER activities performed in 2007.
[b]UR Modification excavation activities performed in 2010.

4.0 Closure Verification Results

Closure verification samples were collected from the bottom and side walls at all four UR sites.

Due to the size and depth of the excavations and to prevent potential hazards to personnel entering the excavation, soil samples were collected using a tracked excavator. Soil samples were field screened for alpha and beta/gamma radiation, and shipped to an offsite laboratory to be analyzed for appropriate chemical and radiological parameters. Although beryllium and DU were the only contaminants of potential concern (COPCs) within CAU 484 (NNSA/NSO, 2004), each verification sample was analyzed for explosives, metals, gamma-emitting radionuclides, and isotopic uranium (U). Since beryllium was not determined to be present in surface or subsurface samples greater than background levels during the original SAFER investigation, it was not considered during closure activities.

Soil verification samples were compared to the preliminary action level (PAL) of 60 picocuries per gram (pCi/g) for DU established in the CAU 484 SAFER Plan (NNSA/NSO, 2004), which is based on the 15-millirem-per-year (mrem/yr) dose limit described in the National Council on Radiation Protection Report No. 129 (NCRP, 1999), rather than the current PAL of 105 pCi/g for construction, commercial, industrial land-use scenarios (NCRP, 1999) using a 25-mrem-per-year dose constraint (Murphy, 2004). Chemical constituents were compared to the U.S. Environmental Protection Agency (EPA) Region 9 Risk-Based Preliminary Remediation Goals (PRGs) for chemical contaminants in industrial soils (EPA, 2008).

Table 4-1 presents the maximum concentrations of detected contaminants in soil verification samples and is the basis for the UR Modification. The table presents the maximum concentration of each contaminant and their corresponding PAL. Verification sample analytical results demonstrated no exceedances of the PAL for DU; however, all four UR sites showed arsenic concentrations above the PAL but below the final action level (FAL). Arsenic is not a constituent of potential concern for CAU 484, and it was determined that the elevated concentrations of arsenic in soils on Antelope Lake are not attributable to DOE activities, but from native mineralogy and natural processes that concentrate soluble salts (refer to the CAU 408 SAFER, Appendix E, for additional information [NNSA/NSO, 2004]).

Table 4-1
Maximum Concentration of Detected Contaminants for CAS RG-52-007-TAML

Contaminant	Maximum Result	Sample Number	Location	Depth (ft bgs)	PAL	Units
Ac-228	2.85	484J024	SA-12-15 East wall of excavation	2.5 - 3.5	5	pCi/g
Arsenic	21.5	484J026	SA-12-15 Bottom middle of excavation	4.0 - 4.5	1.6	mg/kg
Barium	298(J)	484J009	CA-1 Composite sample from spoils pile	4.0 - 6.0	190,000	mg/kg
Cadmium	2.84	484J016	SA-5-9 Bottom center of excavation	5.0 - 6.0	800	mg/kg
Chromium	16.5(J)	484J015	SA-5-9 South wall of excavation	3.0 - 4.0	39.2[a]	mg/kg
Lead	359	484J016	SA-5-9 Bottom center of excavation	5.0 - 6.0	800	mg/kg
Mercury	0.0337	484J016	SA-5-9 Bottom center of excavation	5.0 - 6.0	34	mg/kg
RDX	0.157	484J019	SA-5-9 West wall of excavation	3.0 - 4.0	24	mg/kg
Selenium	1.32	484J018	SA-5-9 North wall of excavation	3.0 - 4.0	5,100	mg/kg
Silver	1.07	484J005	CA-1 Bottom SW corner of excavation	10.0	5,100	mg/kg
U-234	3.12	484J026	SA-12-15 Bottom middle of excavation	4.0 - 4.5	143	pCi/g
U-235	0.338	484J016	SA-5-9 Bottom center of excavation	5.0 - 6.0	17.6	pCi/g
U-238	12.2	484J016	SA-5-9 Bottom center of excavation	5.0 - 6.0	60	pCi/g

[a]Assumes 1:6 ratio between chrome (VI) to chrome (III).

Ac = Actinium
J = Estimated value
mg/kg = Milligrams per kilogram

All spoils from excavation activities were screened for radiological contamination using an NE Electra with DP6BD probe, and for MEC/UXO using analog magnetometers. Excavation spoils were spread out onto the ground in a thin layer (4 to approximately 6 in.) with the excavator or loader and then walked over by the RCT and UXO technicians using the appropriate instrumentation. Contaminated soil was removed and packaged as low level waste. The remaining soil in the spoils pile was sampled and returned to the excavation as backfill. Verification samples from each spoils pile was analyzed for the isotopic U before placing back in the excavation as backfill. The investigation did not identify any MEC/UXO. Based on the results of the UR Modification activities, no further corrective actions are necessary for CAU 484.

5.0 Best Management Practices Performed at CAU 484

During CAU 408 closure activities, UXO and Radiological Control staff identified several areas of scattered DU, and DU-impregnated fragments and debris on NEDS Lake at the TTR (Figures 5-1 and 5-2). Because NEDS Lake is outside the scope of the CAU 408 project and is more closely associated with CAU 484 (three CAU 484 CASs are located on NEDS Lake), a best management practice (BMP) to remove DU-contaminated fragments and debris was implemented. Due to the potential for UXO and radiological hazards on NEDS Lake, personnel training requirements to perform the DU removal activities were the same as the CAU 484 UR Modification activities. Figure 5-3 shows the location of CAU 484 and NEDS Lake.

Figure 5-1
Metal Fragments on NEDS Lake

Remediation activities on NEDS Lake were conducted in a systematic manner using the same proven operating methods and techniques used throughout the closure activities conducted at the CAU 408 Bomblet Target Areas. All activities were conducted under the direction, supervision, and observation of qualified UXO staff and RCTs. Clearance operations commenced on August 6, 2010.

Figure 5-2
Close-up View of DU Fragment on Soil Surface at NEDS Lake

The initial clearance area was established as an approximate 20 acre area on NEDS Lake. The investigation area was divided into eight 100-by-100-meter (m) grids in the area on the lakebed where the DU fragments and debris was originally identified (Figure 5-4). After the first two grids were cleared, closer visual inspection and spot magnetometer surveys of the area extending beyond the original eight grids identified additional areas with significant DU fragments. Due to the discovery of the additional DU fragments, the investigation area was expanded. Expansion of the investigation area encompassed an additional approximately 70 acres. The area was divided into 24 additional grids for a total of 32 to encompass the entire lake bed (Figure 5-5).

Clearance operations consisted of a two- or three-person sweep team using mag and dig techniques to identify MEC and/or metal fragments and debris to a depth of 1 ft bgs. Sweep lanes were identified by spray painting the ground. The use of sweep lanes ensured 100 percent coverage of the grid being cleared. The sweep team consisted of one or two persons operating the White's XLT magnetometer and another person using a shovel to uncover the anomaly detected by the locator operator. Anomalies were unearthed by digging from the side of the item until a positive identification could be made. All anomalies were investigated, and the item (MEC or debris) that created the instrument

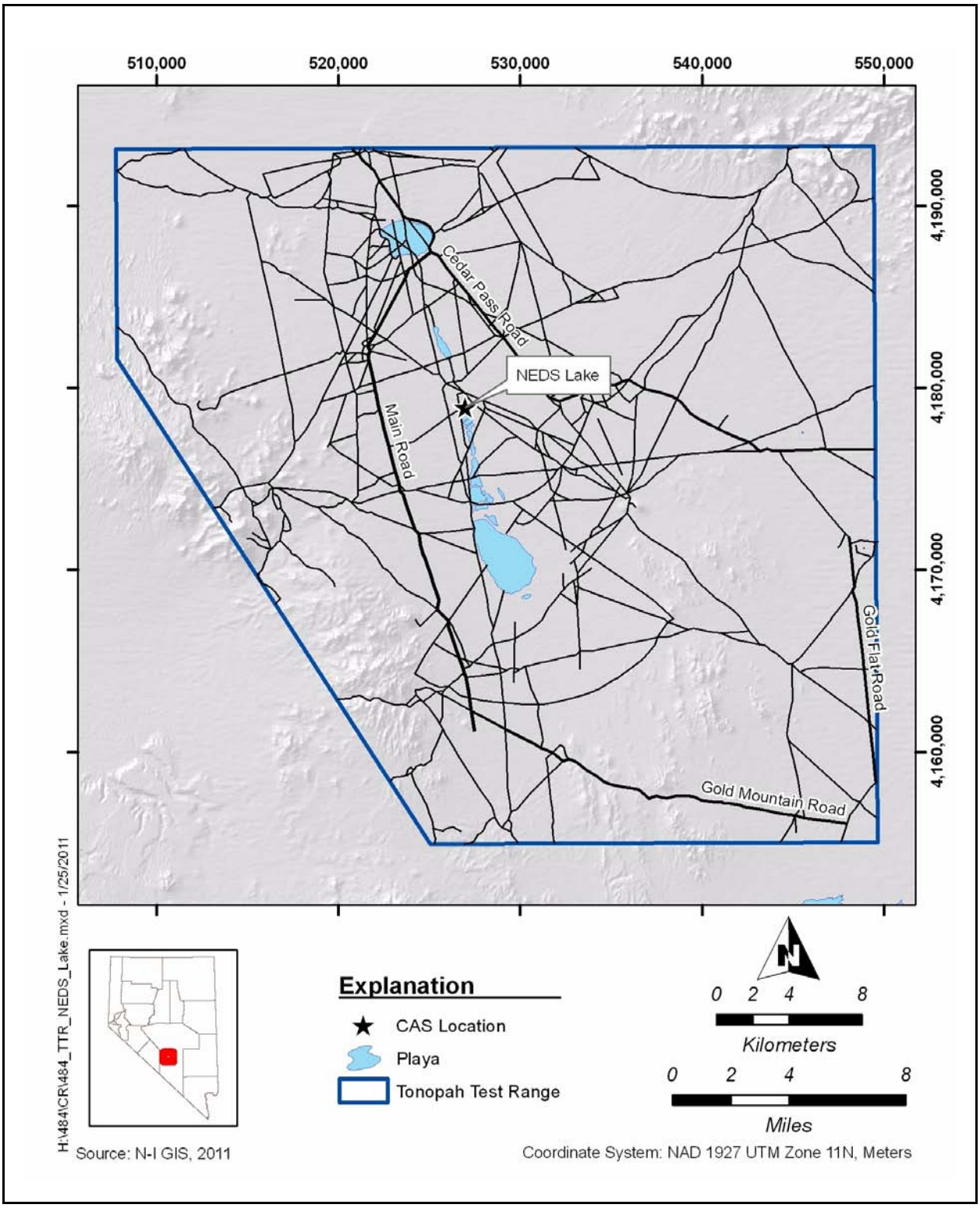

Figure 5-3
CAU 484 Site Location Map

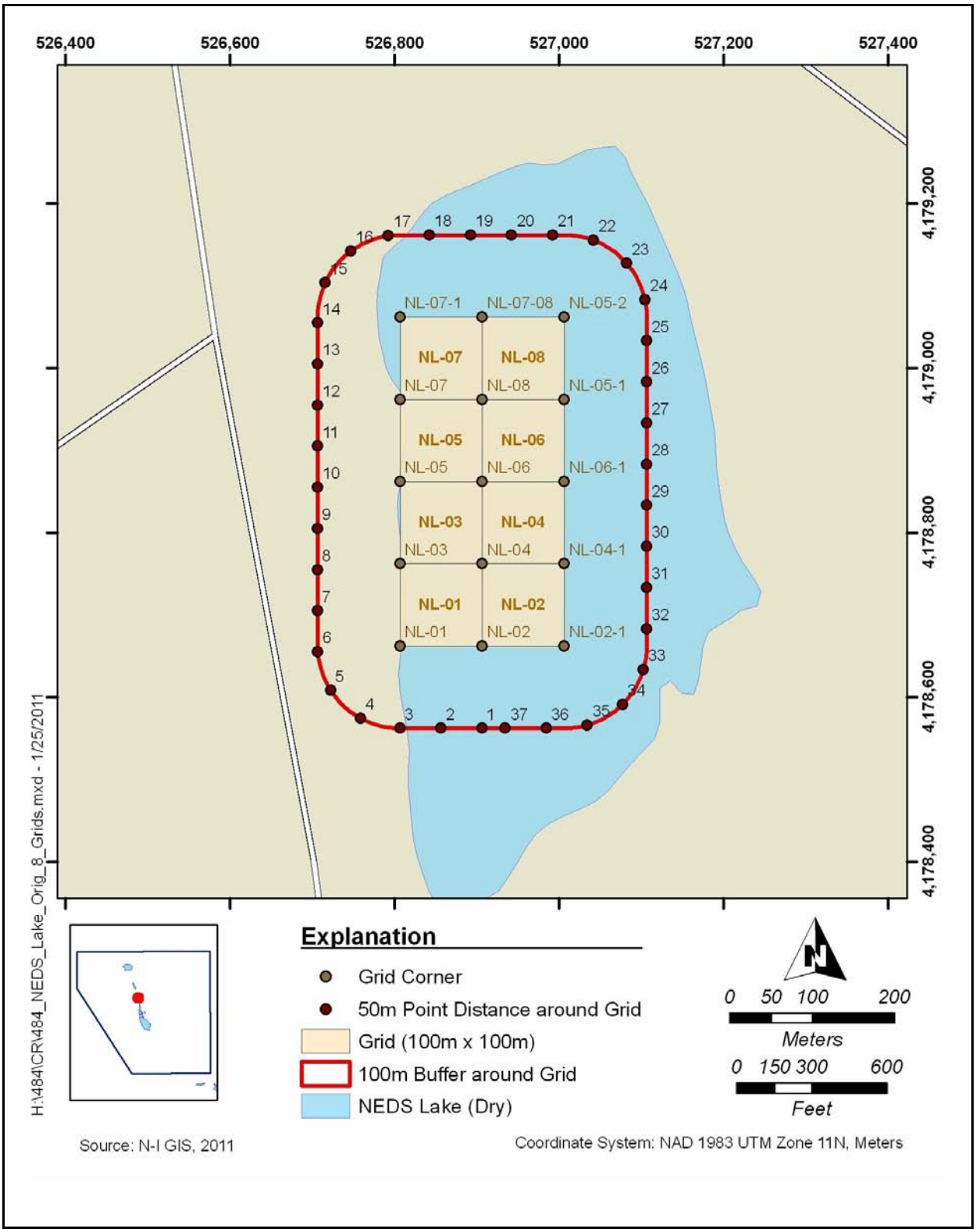

Figure 5-4
Original Eight Grids on NEDS Lake

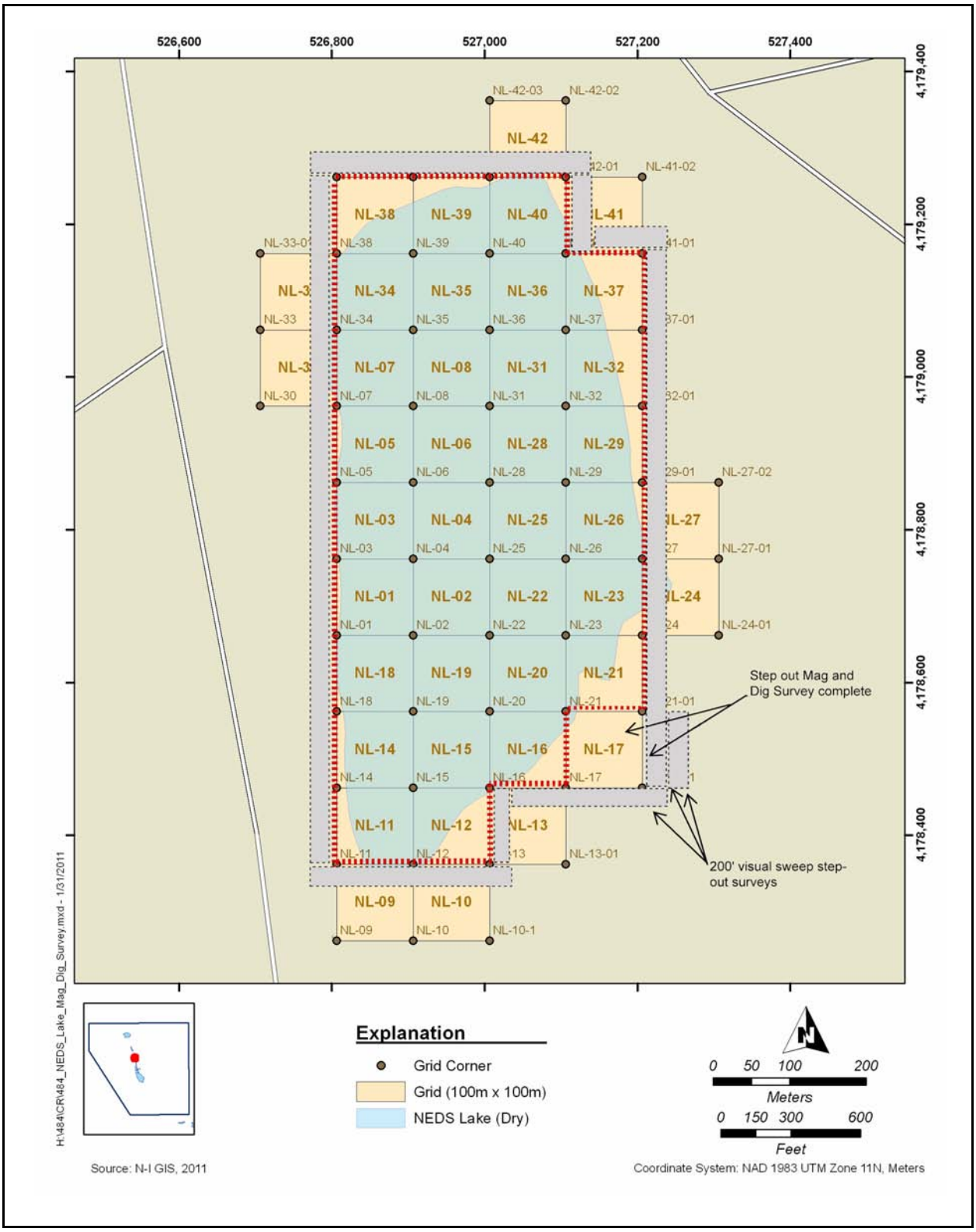

Figure 5-5
NEDS Lake Mag and Dig Survey

response was removed. The area was rechecked to ensure the area was clear. If additional anomalies were detected, investigation/excavation continued until there was no additional instrument response. No UXO/MEC items were found during the clearance activities on NEDS Lake. More than 1,000 individual pieces of DU and DU-impregnated fragments or DU-contaminated debris was removed from NEDS Lake.

The White's XLT magnetometer was chosen because of its all-metal capability; it is also simple to use and has different combinations of settings. The White's XLT's flexibility in adjusting to any soil conditions makes the detector an outstanding multipurpose magnetometer. Each White's XLT magnetometer was validated each day through a function check in a predetermined anomaly field.

Visual sweeps were conducted in the buffer zone, which included step-out mag and dig surveys of a 200-ft radius if MEC/DU items were found. This strategy was implemented in order to establish a cleared area of at least 200 ft beyond the last identified MEC/DU item. For example, if DU-contaminated debris was discovered during the visual evaluation of a target buffer zone, or within 200 ft of the outer border in a perimeter grid, an area extending 200 ft surrounding the item would be surface cleared using mag and dig techniques. Due to the discovery of additional DU near the east perimeter boundary of grid NL-16, and the south perimeter boundary of NL-21, it was decided to extend the mag and dig survey area to grid NL-17. Additional 200-ft step-out visual surveys were then performed beyond the south and east borders of grid NL-17 (Figure 5-5) until a cleared area at least 200 ft beyond the last identified DU item was established.

6.0 Waste Management

Wastes generated during CAU 484 field activities (UR Modification and BMPs) include the following:

- Disposable personnel protective equipment (PPE)
- Sampling equipment
- Contaminated soil
- DU and DU-contaminated debris
- Non-hazardous construction debris

The types, amounts, and disposal of the wastes are detailed below. Newly generated wastes such as the DU-impacted soil and DU-contaminated debris have been characterized based on process knowledge, radiological screening and swipes, and analytical results from associated samples. Site controls were in place to prevent the introduction of hazardous constituents to these waste streams.

Figure 6-1 is a photograph of the waste packaging operation at the CA-1 site. The DU-contaminated soil generated during UR Modification activities was packaged in 5-yd^3 "super sacks" (Figure 6-2). The DU and DU-contaminated debris generated on NEDS Lake was packaged into 55-gallon drums. Waste packages were loaded onto flatbed trucks and transported to the Nevada National Security Site (NNSS) Area 5 Radioactive Waste Management Site (RWMS) for disposal (Figures 6-3 and 6-4). Table 6-1 summarizes the types, amounts, and disposal paths of all remediation wastes generated during the CAU 484 closure activities. All certificates of disposal are presented in Appendix B, including the MEC-free declaration forms provided by the SUXOS. There was no MEC or munitions related debris generated during UR Modification or BMP activities.

Figure 6-1
Waste Packaging Operations at CA-1 Site

Figure 6-2
5-yd^3 Super Sack Being Weighed before Shipment for Disposal

08/03/2010

Figure 6-3
Loading Super Sacks for Shipment to Area 5 RWMS at the NNSS

12/08/2010

Figure 6-4
Loading 55-Gallon Drums from NEDS Lake

Table 6-1
CAS RG-52-007-TAML and NEDS Lake Waste Summary
(Page 1 of 3)

Container Number	Waste Type	Generation Site	Mass (lb)	Disposal Date	Disposal Document
484001	DU-contaminated soil	CA-1	7,770	08/30/2010	CD
484003	DU-contaminated soil	CA-1	7,450	08/26/2010	CD
484005	DU-contaminated soil	CA-1	8,210	08/26/2010	CD
484006	DU-contaminated soil	CA-1	6,710	08/26/2010	CD
484007	DU-contaminated soil	CA-1	7,710	08/26/2010	CD
484009	DU-contaminated soil	CA-1	7,240	08/26/2010	CD
484010	DU-contaminated soil	CA-1	8,200	08/26/2010	CD
484019	DU-contaminated soil	CA-1	9,360	08/26/2010	CD
484020	DU-contaminated soil	CA-1	7,640	08/26/2010	CD
484021	DU-contaminated soil	CA-1	8,200	08/25/2010	CD
484022	DU-contaminated soil	CA-1	7,100	08/25/2010	CD
484023	DU-contaminated soil	CA-1	5,320	08/23/2010	CD
484024	DU-contaminated soil	CA-1	6,680	08/23/2010	CD
484025	DU-contaminated soil	CA-1	7,430	08/23/2010	CD
484026	DU-contaminated soil	CA-1	6,680	08/25/2010	CD
484027	DU-contaminated soil	CA-1	6,970	08/25/2010	CD
484028	DU-contaminated soil	CA-1	6,790	08/25/2010	CD
484029	DU-contaminated soil	CA-1	6,430	08/23/2010	CD
484030	DU-contaminated soil	CA-1	6,990	08/25/2010	CD
484031	DU-contaminated soil	CA-1	6,840	08/25/2010	CD
484032	DU-contaminated soil	CA-1	6,250	08/25/2010	CD
484033	DU-contaminated soil	CA-1	8,200	08/25/2010	CD
484034	DU-contaminated soil	CA-1	7,500	08/25/2010	CD
484035	DU-contaminated soil	CA-1	6,850	08/23/2010	CD
484036	DU-contaminated soil	CA-1	7,650	08/23/2010	CD
484037	DU-contaminated soil	CA-1	8,350	08/23/2010	CD
484038	DU-contaminated soil	CA-1	6,120	08/25/2010	CD
484041	DU-contaminated soil	CA-1	7,670	08/25/2010	CD
484042	DU-contaminated soil	CA-1	7,870	08/30/2010	CD

Table 6-1
CAS RG-52-007-TAML and NEDS Lake Waste Summary
(Page 2 of 3)

Container Number	Waste Type	Generation Site	Mass (lb)	Disposal Date	Disposal Document
484043	DU-contaminated soil	CA-1	8,670	08/25/2010	CD
484048	DU-contaminated soil	CA-1	8,530	08/26/2010	CD
484050	DU-contaminated soil	CA-1	8,330	08/30/2010	CD
484054	DU-contaminated soil	CA-1	7,620	08/25/2010	CD
484063	DU-contaminated soil	CA-1	8,890	08/30/2010	CD
484065	DU-contaminated soil	CA-1	7,070	08/23/2010	CD
484073	DU-contaminated soil	CA-1	8,460	08/30/2010	CD
484079	DU-contaminated soil	CA-1	6,900	08/26/2010	CD
484084	DU-contaminated soil	CA-1	7,900	08/30/2010	CD
484087	DU-contaminated soil	CA-1	9,100	08/30/2010	CD
484091	DU-contaminated soil	CA-1	7,680	08/25/2010	CD
484106	DU-contaminated soil	CA-1	8,240	08/30/2010	CD
484136	DU-contaminated soil	CA-1	8,820	08/30/2010	CD
484137	DU-contaminated soil	CA-1	7,470	08/23/2010	CD
484138	DU-contaminated soil	CA-1	6,560	08/23/2010	CD
484139	DU-contaminated soil	CA-1	7,420	08/23/2010	CD
484140	DU-contaminated soil	CA-1	7,750	08/23/2010	CD
484143	DU-contaminated soil	CA-1	6,270	08/23/2010	CD
484144	DU-contaminated soil	CA-1	6,680	08/23/2010	CD
484145	DU-contaminated soil	CA-1	8,190	08/26/2010	CD
484146	DU-contaminated soil	CA-1	8,360	08/26/2010	CD
484147	DU-contaminated soil	CA-1	8,050	08/26/2010	CD
484148	DU-contaminated soil	CA-1	7,840	08/26/2010	CD
484149	DU-contaminated soil	CA-1	7,700	08/26/2010	CD
484150	DU-contaminated soil	CA-1	7,320	08/23/2010	CD
484151	DU-contaminated soil	CA-1	8,280	08/30/2010	CD
484152	DU-contaminated soil	CA-1	8,520	08/30/2010	CD
484158	DU-contaminated soil	CA-1	7,620	08/30/2010	CD
484008	DU-contaminated soil	SA-4	7,750	08/30/2010	CD

Table 6-1
CAS RG-52-007-TAML and NEDS Lake Waste Summary
(Page 3 of 3)

Container Number	Waste Type	Generation Site	Mass (lb)	Disposal Date	Disposal Document
484017	DU-contaminated soil	SA-4	8,090	08/30/2010	CD
484053	DU-contaminated soil	SA-4	8,000	08/30/2010	CD
484055	DU-contaminated soil	SA-4	8,000	09/07/2010	CD
484012	DU-contaminated soil	SA-5-9	8,500	09/07/2010	CD
484004	DU-contaminated soil	SA-5-9	8,030	09/07/2010	CD
484A01	DU and DU-impacted debris	NEDS Lake	470	12/08/2010	CD
484A02	DU and DU-impacted debris	NEDS Lake	450	12/08/2010	CD
484A03	DU and DU-impacted debris	NEDS Lake	520	12/08/2010	CD
484A04	DU and DU-impacted debris	NEDS Lake	440	12/08/2010	CD
484A05	DU and DU-impacted debris	NEDS Lake	190	12/08/2010	CD

CD = Certificate of disposal

7.0 References

Note: References that were cited in the CAU 484 Closure Report (NNSA/NSO, 2007) retain their original format in this addendum (e.g., FFACO, 1996).

DoD, see U.S. Department of Defense.

EPA, see U.S. Environmental Protection Agency.

FFACO, see *Federal Facility Agreement and Consent Order.*

Federal Facility Agreement and Consent Order. 1996 (as amended August 2006). Agreed to by the State of Nevada; the U.S. Department of Energy, Environmental Management; the U.S. Department of Defense; and the U.S. Department of Energy, Legacy Management.

Murphy, T., Bureau of Federal Facilities. 2004. Letter to R. Bangerter (NNSA/NSO) titled "Review of Industrial Sites Project Document *Guidance for Calculating Industrial Sites Project Remediation Goals for Radionuclides in Soil Using the Residual Radiation (RESRAD) Computer Code*," 19 November. Las Vegas, NV.

Murphy, T., Bureau of Federal Facilities. 2010. Letter to R. Boehlecke (NNSA/NSO) titled "Approval of Plan to Clean Close CAU 484 Corrective Action Unit (CAU) 484: Surface Debris, Waste Sites, and Burn Area (TTR) *Federal Facility Agreement and Consent Order*," 27 May. Las Vegas, NV.

NCRP, see National Council on Radiation Protection and Measurements.

N-I GIS, see Navarro-Intera Geographic Information Systems.

Navarro-Intera Geographic Information Systems. 2011. ESRI ArcGIS Software.

NNSA/NSO, see U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office.

National Council on Radiation Protection and Measurements. 1999. *Recommended Screening Limits for Contaminated Surface Soil and Review of Factors Relevant to Site-Specific Studies*, NCRP Report No. 129. Bethesda, MD.

U.S. Department of Defense. 2009. "Methodologies for Calculating Primary Fragment Characteristics," U.S. Department of Defense Explosives Safety Board Technical Paper 16, Rev. 3. 1 April. Alexandria, VA.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2004. *Streamlined Approach for Environmental Restoration Plan for Corrective Action Unit 484: Surface Debris, Waste Sites, and Burn Area, Tonopah Test Site, Nevada,* Rev. 0, DOE/NV--975. May. Prepared by Bechtel Nevada. Las Vegas, NV.

U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office. 2007. *Closure Report for Environmental Restoration Plan for Corrective Action Unit 484: Surface Debris, Waste Sites, and Burn Area, Tonopah Test Site, Nevada,* Rev. 0, DOE/NV--1226. September. Prepared by National Security Technologies, LLC. Las Vegas, NV.

U.S. Environmental Protection Agency. 2008. *Region 9: Superfund, Preliminary Remediation Goals, Screening Levels for Chemical Contaminants.* As accessed at http://www.epa.gov/region09/waste/sfund/prg/index.html on 15 July 2009. Prepared by EPA Office of Superfund and Oak Ridge National Laboratory.

Appendix A

Approval of Plan To Clean Close CAU 484

(2 Pages)

ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator

May 27, 2010

Robert F. Boehlecke
Federal Project Director
Environmental Restoration Project
National Nuclear Security Administration
Nevada Site Office (NNSA/NSO)
P. O. Box 98518
Las Vegas, NV 89193-8518

RE: Approval of Plan to Clean Close CAU 484
Corrective Action Unit (CAU) 484: Surface Debris, Waste Sites, and Burn Area (TTR)
Federal Facility Agreement and Consent Order

Dear Mr. Boehlecke,

The Nevada Division of Environmental Protection, Bureau of Federal Facilities (NDEP) staff has received the NNSA/NSO request for permission to perform intrusive activities within the Use Restriction Sites of Corrective Action Site (CAS), RG-52-007-TAML; CAU 484 Tonopah Test Range (TTR). The sites contain subsurface depleted uranium (DU) contamination and it is desired to achieve clean closure of the CAU.

NDEP is in agreement with the planned scope of work for CAU 484 in accordance with NNSA/NSO's letter dated May 25, 2010. Keep NDEP informed of progress and decisions.

Address any questions regarding this matter to either Ted Zaferatos at (702) 486-2850, ext. 234, Jeff MacDougall at (702) 486-2850, ext. 233, or to me at (702) 486-2850, ext. 231.

Sincerely,

/s/ T.H. Murphy

T.H. Murphy
Chief
Bureau of Federal Facilities

THM/TZ:tz

ACTION AMEN
INFO
NSO/MGR ✓
COR-
File Code

2030 E. Flamingo Road, Suite 230 • Las Vegas, Nevada 89119 • p: 702.486.2850 • f: 702.486.2863 • www.ndep.nv.gov

cc: K.J. Cabble, ERP, NNSA/NSO, Las Vegas, NV
E.F. DiSanza, WMP, NNSA/NSO
FFACO Group, PSG, NNSA/NSO, Las Vegas, NV
USAF Liasion Office, NNSA/NSO, Las Vegas, NV
M.C. Burmeister, NNES, Las Vegas, NV
M.J. Krauss, NNES, Las Vegas, NV
T.A. Thiele, NSTec, Las Vegas, NV
D.C. Stockdale, USAF, Nellis AFB, NV

Appendix B

Waste Disposal Documentation

(16 Pages)

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10002, with container numbers **408A06; 484004; 484012; and 484055** was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		9-7-10
Signature		Date
JON TANAKA	NSTEC	WASTE SPECIALIST
Received by	Organization	Title
/s/ Jon Tanaka		07-SEPT-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10003, with container numbers 484023; 484143; 484024; 484065; and 484140 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/23/10
Signature		Date
JON TANAKA	EM H220	WASTE SPECIALIST
Received by	Organization	Title
/s/ Jon Tanaka		23-AUG-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10004, with container numbers 484150; 484144; 484139; 484137; and 484138 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/23/10
Signature		Date
Stephen E Wolf	230	Waste Specialist
Received by	Organization	Title
/s/ Stephen E. Wolf		8/23/10
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10005, with container numbers 484037; 484029; 484025; 484035; and 484036 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/23/10
Signature		Date
/s/ Jon Tanaka	EM	WASTE SPECIALIST
Received by	Organization	Title
JON TANAKA		23-AUG-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10006, with container numbers 484027; 484030; 484031; 484038; and 484026 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/24/10
Signature		Date
Stephen E Wolf	NSTEC	Waste Specialist
Received by	Organization	Title
/s/ Stephen E. Wolf		8/24/10
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10007, with container numbers 484032; 484022; 484028; 484021; and 484033 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/24/10
Signature		Date
Stephen E Wolf	NSTEC	Waste Specialist
Received by	Organization	Title
/s/ Stephen E. Wolf		8/27/10
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10008, with container numbers 484034; 484043; 484041; 484091; and 484054 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/24/10
Signature		Date
Stephen E Wolf	NSTec	Waste Specialist
Received by	Organization	Title
/s/ Stephen E. Wolf		8/24/10
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10009, with container numbers 484019; 484006; 484003; 484020; and 484005 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/25/10
Signature		Date
Jon Tanaka	NSTEC	WASTE SPECIALIST
Received by	Organization	Title
/s/ Jon Tanaka		26-AUG-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10010, with container numbers 484147; 484148; 484146; 484145; and 484010 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/25/10
Signature		Date
[illegible]	[illegible]	[illegible]
Received by	Organization	Title
/s/ Ed Takahashi		[illegible]
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10011, with container numbers 484007; 484009; 484079; 484149; and 484048 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/25/10
Signature		Date
Ed Takahashi	NSTec	Scientist
Received by	Organization	Title
/s/ Ed Takahashi		26-Aug-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10012, with container numbers 484151; 484042; 484050; 484136; and 484001 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/26/10
Signature		Date
JON TANAKA	NSTEC	WASTE SPECIALIST
Received by	Organization	Title
/s/ Jon Tanaka		30-AUG-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10013, with container numbers 484063; 484073; 484087; 484106; and 484158 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/26/10
Signature		Date
8/30/10 Louis Gregory	NSTec	LLW Supervisor
Received by	Organization	Title
/s/ Louis Gregory		08/30/10
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Revision 13, shipment number ITL10014, with container numbers 484152; 484084; 484008; 484017; and 484053 was shipped and received at the Nevada Test Site Radioactive Waste Management Complex in Area 5 for disposal as stated below.

Mark Heser	NI	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		8/26/10
Signature		Date
/s/ Jon Tanaka	NSTEC	WASTE SPECIALIST
Received by	Organization	Title
JON TANAKA		30-AUG-2010
Signature		Date

Certificate of Disposal

This is to certify that the Waste Stream No. LITN-000000006, Rev. 13, shipment number ITL10015, with container numbers 484A01, 484A02, 484A03, 484A04, and 484A05 was shipped and received at the Nevada Test Site Radioactive Waste Management Site in Area 5 for disposal as stated below.

Mark Heser	Navarro-Intera	Waste Coordinator
Shipped by	Organization	Title
/s/ Mark Heser		12/6/10
Signature		Date
Burton Ford	N5Tec	Waste Specialist
Received by	Organization	Title
/s/ Burton Ford		12-8-2010
Signature		Date

CLEAR

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

PREVIOUS EDITION MAY BE USED

1 2 3 4 5 6 7	23 24 25 26 27 28 29	45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
DI COD E MD	RI FROM	M & S
UI	UNIT	QUANTITY
SMR	SUPPLE-MENTARY ADDRESS	SIG
FUND	DIS-TRI-BU-TION	PROJECT
PRI	REQD DEL DATE	ADV
RI	O/P	COND
MGT		

1. TOTAL PRICE			2. SHIP FROM	3. SHIP TO
UNIT PRICE	DOLLARS	CTS	TTR	NTS
DOLLARS / CTS	DOLLARS	CTS	4. MARK FOR	
0 / 0	0	0		

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS

10. QTY. REC'D	11. UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
5	BL	400 lbs ea			

16. FREIGHT CLASSIFICATION NOMENCLATURE: Range Debris

17. ITEM NOMENCLATURE: Range Debris

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE
	5	2000 lbs	

22. RECEIVED BY | 23. DATE RECEIVED

24. DOCUMENT NUMBER & SUFFIX (30-44)

25. NATIONAL STOCK NO. & ADD (8-22)

Container Id : 484A01, 484A02, 484A03, 484A04, 484A05

Seal Id: 0209874, 0209893, 0209886, 0209877, 0209810

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

Certified by:

/s/ Brian R. Wurth

Brian R Wurth, SUXOS

EODT Home Office (865)988-6063

11/11/2010

Verified by:

/s/ Lawrence N. Richards

Lawrence N. Richardson, UXOSO/UXOQCS

EODT Home Office (865)988-6063

27. ADDITIONAL DATA

This certifies and verifies that the listed range debris consisting of munitions and cultural related debris, has been 100 per cent properly inspected and to the best of our knowledge, current capabilities and belief are inert and/or free of explosive constituents.

FormFlow (DLA)

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

PREVIOUS EDITION MAY BE USED

1 2 3 4 5 6 7 | 23 24 25 26 27 28 29 | 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

DI COD E MD | RI FROM | M & S | UI | UNIT | QUANTITY | SMR | SUPPLE-MENTARY ADDRESS | SIG | FUND | DIS-TRI-BU-TION | PROJECT | PRI | REQD DEL DATE | ADV | RI | O/P | COND | MGT

1. TOTAL PRICE | UNIT PRICE DOLLARS / CTS | DOLLARS | CTS | 2. SHIP FROM: TTR | 3. SHIP TO: NTS | 4. MARK FOR

0 / 0 | 0 | 0

5. DOC DATE | 6. NMFC | 7. FRT RATE | 8. TYPE CARGO | 9. PS

10. QTY. REC'D: 5 | 11. UP: BL | 12. UNIT WEIGHT: 400 lbs ea | 13. UNIT CUBE | 14. UFC | 15. SL

16. FREIGHT CLASSIFICATION NOMENCLATURE: Range Debris

17. ITEM NOMENCLATURE: Range Debris

18. TY CONT | 19. NO CONT: 5 | 20. TOTAL WEIGHT: 2000 lbs | 21. TOTAL CUBE

22. RECEIVED BY | 23. DATE RECEIVED

24. DOCUMENT NUMBER & SUFFIX (30-44)

25. NATIONAL STOCK NO. & ADD (8-22)

Container Id : 484A01, 484A02, 484A03, 484A04, 484A05

Seal Id: 0209874, 0209893, 0209886, 0209877, 0209810

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

Certified by:

/s/ Brian R. Wurth

Brian R Wurth, SUXOS

EODT Home Office (865)988-6063

11/11/2010

Verified by:

/s/ Lawrence N. Richards

Lawrence N. Richardson, UXOSO/UXOQCS

EODT Home Office (865)988-6063

27. ADDITIONAL DATA

This certifies and verifies that the listed range debris consisting of munitions and cultural related debris, has been 100 per cent properly inspected and to the best of our knowledge, current capabilities and belief are inert and/or free of explosive constituents.

FormFlow (DLA)

EODT
EOD TECHNOLOGY, INC.

An Employee-owned Company Promoting Freedom,
Stability and Environmental Stewardship Worldwide since 1987
www.eodt.com

To: Navarro-Integra. LLC 8-19-2010

Subject: Certification of IP-1 Supersacks from TTR

From: EOD Technology, Inc.

The following IP-1 Supersacks serial numbered containers were inspected during filling and to the best of our knowledge do not contain any MEC or explosive hazards:

484001	484042	484010	484065	484024	484137	484032	484147
484003	484043	484012	484073	484025	484138	484033	484148
484004	484048	484017	484079	484026	484139	484034	484149
484005	484050	484019	484084	484027	484140	484035	484150
484006	484053	484020	484087	484028	484143	484036	484151
484007	484054	484021	484091	484029	484144	484037	484152
484008	484055	484022	484106	484030	484145	484038	484158
484009	484063	484023	484136	484031	484146	484041	

Certified By:

/s/ Forrest R. Irvin

Forrest R. Irvin, UXOQCS/UXOSO

Verified By:

/s/ Robert A. Prosperi

Robert A. .Prosperi, SUXOS

Appendix C

Nevada Division of Environmental Protection Comments

(2 Pages)

ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

February 11, 2011

Robert F. Boehlecke
Federal Project Director
Environmental Restoration Project
National Nuclear Security Administration
Nevada Site Office (NNSA/NSO)
P. O. Box 98518
Las Vegas, NV 89193-8518

RE: Review of the draft Addendum to the Closure Report (CR)
Corrective Action Unit (CAU) 484: Surface Debris, Waste Sites, and Burn Area
Tonopah Test Range, Nevada (TTR)
Federal Facility Agreement and Consent Order

Dear Mr. Boehlecke:

The Nevada Division of Environmental Protection, Bureau of Federal Facilities (NDEP) staff has received and reviewed the draft Addendum, Revision 0 January 2011, to the Closure Report (CR) for Corrective Action Unit (CAU) 484: Surface Debris, Waste Sites, and Burn Area (TTR). NDEP's review of this document did not indicate any deficiencies.

Address any questions regarding this matter to Ted Zaferatos at (702) 486-2850, ext. 234, or to me at (702) 486-2850, ext. 233.

Sincerely,

/s/ Jeff MacDougall

Jeff MacDougall, Ph.D., C.P.M.
Supervisor
Bureau of Federal Facilities

JJM/TZ: *tz*

cc: Roger Christensen, 98 RANW/XPL, NAFB, NV
D.J. Haarklau, 98, RANW/XPL, NAFB, NV
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FFACO Group, PSG, NNSA/NSO, Las Vegas, NV

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