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Environmental
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Project

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Streamlined Approach for
Environmental Restoration
Closure Report for
Corrective Action Unit 464:
Historical Underground Storage
Tank Release Sites,
Nevada Test Site, Nevada

Controlled Copy No.:

Revision: 0

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April 1998

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**STREAMLINED APPROACH FOR ENVIRONMENTAL
RESTORATION CLOSURE REPORT FOR
CORRECTIVE ACTION UNIT 464
HISTORICAL UNDERGROUND STORAGE
TANK RELEASE SITES,
NEVADA TEST SITE, NEVADA**

**Prepared for
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Nevada Operations Office
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**Prepared by
Bechtel Nevada
Environmental Restoration**

April 1998

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RESTORATION CLOSURE REPORT FOR
CORRECTIVE ACTION UNIT 464
HISTORICAL UNDERGROUND STORAGE
TANK RELEASE SITES,
NEVADA TEST SITE, NEVADA**

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
CAS	Corrective Action Site
CAU	Corrective Action Unit
cm	centimeter
CR	Closure Report
DOE/NV	U.S. Department of Energy, Nevada Operations Office
EPA	U.S. Environmental Protection Agency
FFACO	Federal Facility Agreement and Consent Order
ft	feet
gal	gallons
in	inches
km	kilometers
L	liters
m	meters
m ³	cubic meters
MDL	method detection limit
mg/kg	milligrams per kilogram
mi	mile
ml	milliliters
NAC	Nevada Administrative Code

ACRONYMS AND ABBREVIATIONS (continued)

NDEM	Nevada Division of Environmental Management
NDEP	Nevada Division of Environmental Protection
NEL	Nevada Environmental Laboratories
NTS	Nevada Test Site
OVM	Organic Vapor Monitor
ppm	parts per million
SAFER	Streamlined Approach for Environmental Restoration
TPH	Total Petroleum Hydrocarbon
UST	Underground Storage Tank
VOC	Volatile Organic Compound
yd³	cubic yards

EXECUTIVE SUMMARY

This report addresses the site characterization of two historical underground storage tank petroleum hydrocarbon release sites identified by Corrective Action Site (CAS) Numbers 02-02-03 and 09-02-01. The sites are located at the Nevada Test Site in Areas 2 and 9 and are concrete bunker complexes (Bunker 2-300, and 9-300). The sites are listed in the Federal Facility Agreement and Consent Order (FFACO) in Appendix III and are the only two sites in Corrective Action Unit (CAU) 464. Work was completed following the Nevada Division of Environmental Protection-approved document, Streamlined Approach for Environmental Restoration Work Plan for CAUs 452, 454, 456, and 464. Closure of Historical UST Release Sites.

Characterization was completed using drilling equipment to delineate the extent of petroleum hydrocarbons at release site 2-300-1 (CAS 02-02-03). Based on site observations, the low hydrocarbon concentrations detected, and the delineation of the vertical and lateral extent of subsurface hydrocarbons, an "A through K" evaluation was completed to support a request for an Administrative Closure of the site.

Clean closure was completed using a backhoe at release site 9-300-1 (CAS 09-02-01). The verification sample collected at approximately 3.0 meters (10 feet) below the location of the former tank south bottom did not contain diesel above the method detection limit (<10 milligrams per kilogram).

Based upon site observations and the soil sample analytical results it is requested that a Notice of Completion be provided by the Nevada Division of Environmental Protection. Upon closure approval, CAU 456 will be promoted from Appendix III to Appendix IV of the FFACO "Closed Corrective Action Units."

1.0 INTRODUCTION

This report addresses the site characterization of two historical underground storage tank (UST) petroleum hydrocarbon release sites. The sites are identified as Bunkers 2-300-1 and 9-300-1 and are located at the Nevada Test Site (NTS) in Areas 2 and 9, respectively (Table 1, Figure 1). These two sites are listed in the Federal Facility Agreement and Consent Order (FFACO) in Appendix III and comprise Corrective Action Unit (CAU) 464 (FFACO, 1996). The hydrocarbon releases associated with former tank sites 2-300-1 and 9-300-1 have been assigned Corrective Action Site (CAS) Numbers 02-02-03 and CAS 09-02-01, respectively. The USTs identified in this report were closed by removal in 1996 by the U.S. Department of Energy, Nevada Operations Office (DOE/NV). Subsequent to tank closure the Nevada Division of Environmental Protection (NDEP) was provided amended Environmental Protection Agency (EPA) Forms 7530-1 (Notification for USTs), in addition to tank closure information and analytical data. Tank closure information is provided in Appendix A.

TABLE 1 - CAU 464 HYDROCARBON RELEASE SITES

UST ID ¹	UST CAS NUMBER ²	RELEASE CAS NUMBER ³	NDEM NUMBER ⁴	LOCATION	DATE REMOVED/ CLOSED ⁵
2-300-1	02-02-03	02-02-03	960603-771	Area 2-300 Bunker	April 30, 1996
9-300-1	09-02-01	09-02-01	960701-849	Area 9-300 Bunker	May 2, 1996

Notes:

- ¹ Underground Storage Tank Identification Number.
- ² Corrective Action Site Number assigned to the UST within the FFACO.
- ³ Corrective Action Site Number assigned to the hydrocarbon release within the FFACO.
- ⁴ Nevada Division of Environmental Management Number assigned at time of release identification.
- ⁵ Date which tank was closed by removal.

1.1 PURPOSE

Hydrocarbon releases were identified at each of the two sites based upon laboratory analytical data collected at the time of tank closures. Hydrocarbon concentrations at these sites exceeded the Nevada Administrative Code (NAC) Action Level of 100 milligrams per kilogram (mg/kg) (NAC 459.9973, 1996). NDEP requires assessment and corrective actions for soil with a petroleum hydrocarbon concentration exceeding the NAC Action Level. Each release was assigned a Nevada Division of Emergency Management (NDEM) number at the time of spill notification (Table 1).

The purpose of this Closure Report (CR) is to provide documentation of the activities completed during the characterization or remediation of the two hydrocarbon release sites. The work was completed as outlined in the Streamlined Approach for Environmental Restoration (SAFER) Work Plan for CAUs 452, 454, 456, and 464, Closure of Historical UST Release Sites (US DOE, 1997). The documentation provided in this CR supports a request to NDEP for closure of CAU 464.

1.2 SCOPE

The scope of work for CAS 02-02-03 (2-300-1) was to collect soil samples in an effort to identify the lateral and vertical extent of the hydrocarbon plume. The characterization was completed using a Mobil Drill B-59 continuous flight, hollow-stem auger drill rig. Drilling was required at this site due to the depth of petroleum hydrocarbons and proximity to the concrete 2-300 bunker complex. Three boreholes were drilled at the site to sufficiently delineate the extent of the hydrocarbon plume. Data collected from the characterization activities is provided in this report to support Administrative Closure of the release site.

The scope of work for CAS 09-02-01 (9-300-1) was to over excavate hydrocarbon-impacted soil from the southern end of the former tank location where hydrocarbons were identified at the time of tank closure. One verification soil sample was collected from the bottom of the southern end of the excavation.

1.3 CLOSURE REPORT CONTENTS

This CR has been developed to support administrative closures of CAS 02-02-03 and the clean closure of CAS 09-02-01. The format of the report is as follows:

- Section 1.0 - Introduction, Purpose, and Scope.
- Section 2.0 - Closure Activities.
- Section 3.0 - Waste Disposition.
- Section 4.0 - Closure Results (including the "A through K" Evaluation).
- Section 5.0 - Conclusions.
- Section 6.0 - References.
- Appendix A - UST Closure Information.

- Appendix B - Waste Disposal Documentation.
- Appendix C - 2-300 Borehole Logs.
- Appendix D - Laboratory Analytical Data.

The SAFER Work Plan was implemented using information and guidance provided from the following documents:

- SAFER Work Plan for CAUs 452, 454, 456, and 464 Closure of Historical UST Release Sites, Nevada Test Site (US DOE, 1997).
- Site Specific Health and Safety Plan for SAFER Closure of Historical UST Release Sites - Areas 2, 9, 12, 23, and 25 (BN, 1997a).
- Field Management Plan: CAU 452, 454, 456, and 464 Closure of Historical UST Release Sites, Nevada Test Site (BN, 1997b).
- Closure of Historical UST Release Sites, Construction Work Plan (BN, 1997c).
- Nevada Environmental Restoration Project, Project Management Plan (US DOE, 1994).
- Nevada Environmental Restoration Project, Health and Safety Plan (US DOE, 1996a).
- Nevada Environmental Restoration Project, Industrial Sites, Quality Assurance Project Plan, Nevada Test Site (US DOE, 1996b).

2.0 CLOSURE ACTIVITIES

2.1 DESCRIPTION OF CORRECTIVE ACTION ACTIVITIES

2.1.1 Sampling Protocol

The CAU 464 sites were characterized to obtain data to support either an Administrative Closure (Bunker 2-300, CAS 02-02-03) or clean closure (Bunker 9-300, CAS 09-02-01). Prior to drilling at the 2-300 release site and excavating at the 9-300 release site, each site was cleared for underground utilities (Goldak) and signed excavation permits were issued. Boreholes drilled at the 2-300 release site were completed using continuous flight, hollow-stem auger drilling equipment. A backhoe was used to complete excavation activities at the 9-300 release site. Prior to each sampling event, sample equipment was decontaminated using Alconox cleaning solution and rinsed with distilled water. Augers were decontaminated using Alconox cleaning solution followed by a high pressure water rinse.

Soil samples for logging and chemical analysis from the 2-300 release site were collected at approximate 1.5-meter (m) (5-foot [ft]) intervals by advancing a split-spoon sampler, equipped with brass liners, into the undisturbed soil beyond the tip of the cutting head. If a sufficient volume of soil was recovered in the split-spoon, the bottom brass sleeve was retained, sealed with plastic end caps, and submitted to the off-site laboratory for analysis. If sufficient soil volume was not retained, the sample was placed into a clean 250-milliliter (ml) glass laboratory sample jar. The sample from the 9-300 release site was collected using the backhoe bucket and placed into a 250-ml glass laboratory jar using a stainless steel scoop. All samples were labeled with the sample identification, date and time sampled, sampler's initials, and analysis to be performed. Samples were placed in a ice chest and cooled to approximately 4 degrees Centigrade (39.2 degrees Fahrenheit). Samples were kept in the custody of the project geologist or in a secured location until delivered to Nevada Environmental Laboratories (NEL) located in Las Vegas, Nevada.

Soil samples collected from each site were screened in the field using a Dexsil PetroFLAG™ hydrocarbon analyzer kit. PetroFLAG™ screens for the presence of hydrocarbons to a concentration level of greater than (>)2,000 parts per million (ppm). Samples were also screened using an Organic Vapor Monitoring (OVM) Model 580B calibrated to 100 ppm Isobutylene at the beginning of each field day.

At the 2-300 release site, if hydrocarbons were detected in the screened samples, the boreholes were advanced until field screening indicated a PetroFLAG™ result of <50 ppm. One to two screened samples which indicated the presence of hydrocarbons and the two subsequent confirmatory "clean" samples were then submitted to an off-site laboratory. Once the vertical extent of the release was defined, then the borehole locations were stepped out to define the lateral extent of impacted soil following the same screening process. The distance that each

borehole was stepped out was contingent on drill rig access and the estimated vertical depth of the hydrocarbon plume.

2.1.2 Description and Background: Release Site 2-300-1

UST 2-300-1 was located on the east side of Bunker 2-300 within the Area 2 2-300 Bunker Complex (Figure 2). The tank had an approximate capacity of 1,900 liters (L) (500 gallons [gal]) and supplied diesel fuel for generators. The tank was full at the time of the initial field identification. One soil sample collected below the south tank bottom, at the time of tank removal on April 30, 1996, had a total petroleum hydrocarbon (TPH) concentration of 230 mg/kg. Analytical results from subsequent soil sampling on May 23, 1996, had a TPH concentration of 9,600 mg/kg at a depth of approximately 2.7 m (9 ft) below ground surface (bgs). The excavation activities in 1996 indicated that the spill had impacted soil under the generator room and access driveway. It is believed that the release was a result of historical periodic product line leakage. This is based upon the tank being full at the time of initial field identification, no soil staining observed above or directly below the tank at the time of closure, and no apparent holes or rust observed on the tank. Drilling was required at this site due to the following site limitations:

- Equipment access is limited by the sloped narrow driveway of the bunker complex.
- The former tank location is bordered on the west by the Bunker 2-300 generator room and is below a graded 1:1 sloped soil cover.
- The depth of hydrocarbon-impacted soil extends below the reach of excavation equipment.

Closure of the hydrocarbon release (NDEM No. 960603-771, CAS No. 02-02-03) is addressed in this report.

2.1.2.1 Drilling Activities: Release Site 2-300-1

Three boreholes were completed at this site (2-300-B1 through 2-300-B3). Borehole locations are shown on Figure 2. Borehole B1 was located approximately 2.5 m (8 ft) from the release area and was completed to a depth of 9.5 m (31 ft) bgs. Borehole B2 was located approximately 5.5 m (18 ft) south of the release area and was completed to a depth of 7.9 m (26 ft) bgs. Borehole B3 was first located approximately 6.1 m (20 ft) southwest of the release area, however, hydrocarbon odors were noted and confirmed to be present in grab samples screened using PetroFLAG™. The borehole was terminated and abandoned at a depth of 4.6 m (15 ft) bgs. The borehole was then relocated an additional 2.1 m (7 ft) west (8.1 m [26.5 ft] southwest of the release area) and was completed to a depth of 7.9 m (26 ft) bgs.

FIGURE 2
 BUNKER 2-300 SITE LAYOUT AND BOREHOLE LOCATIONS

Upon completion of each borehole, clean-graded sand was slowly placed into the borehole using the augers as a tremmie pipe to prevent bridging. The upper 1.5 m (5 ft) was then filled with approximately 0.3 m to 0.6 m (1 ft to 2 ft) of 1.0-cm (3/8-in) bentonite pellets, hydrated, and sealed with a concrete plug. Field observations and analytical results are discussed and summarized in Section 4.0, Closure Results.

2.1.3 Description and Background: Release Site 9-300-1

UST 9-300-1 was located on the east side of the Area 9 Bunker 300. Area 9 is an historic aboveground nuclear testing area and many of the areas surrounding the 9-300 Bunker are posted for radiation contamination. The former tank had an approximate capacity of 1,900 L (500 gal) and supplied diesel fuel for generators. The tank was full at the time of the initial field identification. The tank was removed on May 2, 1996. A soil sample collected from below the south tank bottom had a TPH concentration of 3,300 mg/kg. It is believed that the release was a result of historical periodic product line leakage based upon the tank being full at the time of field identification, no soil staining observed above or directly below the tank at the time of closure, and no apparent holes or rust observed on the tank. Closure of the hydrocarbon release (NDEM No. 960701-849, CAS No. 09-02-01) is addressed in this report.

2.1.3.1 Excavation Activities: Release Site 9-300-1

The former tank area was excavated using a backhoe on November 19, 1997, as outlined in the SAFER Work Plan (US DOE, 1997). Excavation of the impacted soil associated with the release from 9-300-1 was complicated by a concrete footing that extended out from the 9-300 Bunker. The impacted soil appeared to be localized in an area where the copper product lines fed into the concrete bunker footing. The excavation was extended to a depth of approximately 1.7 m (5.5 ft) below the copper piping (or approximately 3 m [10 ft] below the former tank bottom). A soil sample was collected from the backhoe bucket using a stainless steel scoop and analyzed for TPH as diesel. Approximately 11.5 cubic meters (m^3) (15 cubic yards [yd^3]) of hydrocarbon-impacted soils were removed from the site. Soils were stockpiled on and covered with plastic at the site pending disposal. A site map is provided as Figure 3. Field observation and analytical results are summarized in Section 4.0, Closure Results.

2.2 DEVIATIONS FROM THE SAFER WORK PLAN

Deviations from the SAFER Work Plan were minimal. At the 2-300-1 site the scheduled up gradient borehole (2-300-B2) could not be installed at the designated location due to terrain limitations. Instead this borehole was used to delineate the southern extent of the release. Two additional unscheduled boreholes were installed southwest of borehole 2-300-B1. These two

boreholes were used to identify the southwestern extent of impacted soil. In addition, the initial sample depth was modified in some instances to correlate with the depth at which hydrocarbons were encountered in other boreholes.

Soil samples were not delivered to the Bechtel Nevada Analytical Services Section as stated in the SAFER Work Plan. In order to expedite analysis, the soil samples were retained by the project geologist and delivered to NEL.

Borehole locations and the clean closure excavation were not surveyed using the Global Positioning System. Since each borehole and the clean closure excavation is adjacent to Bunker structures which are not anticipated to be removed in the near future, it was determined that an accurate site plan could be created from field measurements.

Impacted soils from the 2-300 drilling site were placed into 208-L (55-gal) metal drums instead of being placed into a soil pile. Drums were more efficient for handling and transporting the soil out of the work area due to the limited access available at the drill site.

2.3 CORRECTIVE ACTION SCHEDULE AS COMPLETED

Drilling was completed without significant delays due to inclement weather, equipment breakdown, or laboratory analysis. Drilling at the 2-300 release site was started on February 3, 1998, and completed on February 9, 1998, and consisted of the completion of four boreholes (including one step out location). Soil disposal occurred on February 18, 1998.

Excavation activities at the 9-300 release site were completed on November 19, 1997. Soil disposal occurred on December 9, 1997. The project schedule for the completed field activities is provided in Figure 4.

2.4 SITE PLAN

Site plans have been prepared depicting the site locations (Figures 2 and 3). Since no modifications to subsurface utilities or facilities were made, engineering "as-builts" are not required. However, a copy of the site plans will be submitted to the files at the Archives and Records Center located in Mercury, Nevada.

3.0 WASTE DISPOSITION

Waste generated from the drilling activities consisted of hydrocarbon-impacted soils and decontamination rinsewater. Soils generated from the 2-300 release site were managed by placing the drill cuttings into 208-L (55-gal) metal drums. Soil from the 9-300 release site was placed on and covered with plastic pending disposal. Decontamination rinsewater, generated from sampling and drilling equipment, was solidified using the soils from the sites, or by adding bentonite.

Each site was assigned a waste tracking number. The tracking number for the 2-300 site was applied to the outside of each drum along with the corresponding borehole identification and date generated. Soil from the 2-300 site was disposed of at the Area 6 Hydrocarbon Landfill on February 18, 1998. The tracking number for the 9-300 site was applied to the outside of the plastic soil pile cover. Soil from the 9-300 site was disposed of at the U10c Landfill on December 9, 1997.

Landfill acceptance of the soil and solidified rinsewater was based on the analytical data collected during the tank closure and/or laboratory analysis of the additional verification and characterization samples. A radiological "green tag," bill of lading, and weight ticket accompanied each load to the respective landfills. Landfill disposal documentation is provided in Appendix B.

4.0 CLOSURE RESULTS

4.1 RELEASE SITE 2-300-1 (CAS 02-02-03)

Three boreholes were drilled at this site in order to define the lateral and vertical extent of the petroleum hydrocarbon release. Figure 2 provides a plan view of the site indicating the borehole locations and estimated lateral extent of hydrocarbon impact.

Borehole B1 was drilled to a depth of 9.4 m (31 ft) to delineate the vertical extent of impact. TPH as diesel was detected at a depth of 4.6 m (15 ft) bgs at a concentration of 230 mg/kg. A blind replicate of the soil sample collected from a depth of 4.6 m (15 ft) was also analyzed and was reported to have a TPH concentration of 370 mg/kg. Samples collected at depths of 6.1 m (20 ft), 7.6 m (25 ft), and 9.1 m (30 ft) did not contain TPH as diesel above the method detection limit (MDL) of 20 mg/kg. The vertical extent of the diesel release was determined not to exceed 6.1 m (20 ft) bgs.

Borehole B2 was installed south of the hydrocarbon release area. Samples collected from depths of 3.0 m (10 ft), 4.6 m (15 ft), 6.1 m (20 ft), and 7.6 m (25 ft) bgs were below the MDL of 20 mg/kg. The lateral extent of hydrocarbon impact to the south was defined by Borehole B2 and was determined not to exceed a distance of 5.5 m (18 ft) from the release area.

Borehole B3 was installed southwest of the release area. Since hydrocarbons were identified in the first location of Borehole B-3, the location was moved (Figure 2). Samples collected from depths of 3.0 m (10 ft), 4.6 m (15 ft), 6.1 m (20 ft), and 7.6 m (25 ft) bgs were below the MDL of 10 mg/kg. The lateral extent of hydrocarbons to the southwest was defined by Borehole B3 and was determined not to exceed a distance of approximately 8.2 m (27 ft) from the release area.

Soils at the site consisted of clayey gravel to gravelly clay and silty sands. Drilling logs detailing the lithologic conditions, PetroFLAG™ results, and OVM readings, are provided in Appendix C. Sample analytical results and PetroFLAG™ screening results are provided in Table 2. Laboratory analytical results are provided in Appendix D.

Based on the site observations, the hydrocarbon concentrations detected, and the delineation of the vertical and lateral extent of subsurface hydrocarbons, an "A through K" evaluation to support an Administrative Closure of the site has been completed.

4.1.1 A Through K Evaluation: UST Release Site 2-300-1

The following is the NAC "A through K" evaluation which supports the request for an Administrative Closure of CAS 02-02-03 (NAC, 1996).

TABLE 2 - DRILL SITE 2-300-1: SUMMARY OF SOIL ANALYTICAL RESULTS

BOREHOLE ID	SAMPLE ID	DATE SAMPLED	SAMPLE DEPTH meters [feet]	TPH¹ DIESEL (mg/kg)	PETROFLAG™ RESULTS (ppm)
Borehole 1*	2-300/B1@15 2-300/B1@18 (blind replicate)	Feb. 4, 1998	4.6 [15]	230 370 replicate	825
	2-300/B1@20	Feb. 4, 1998	6.1 [20]	<20	0
	2-300/B1@25	Feb. 4, 1998	7.6 [25]	<20	0
	2-300/B1@30	Feb. 4, 1998	9.1 [30]	<20	7
Borehole 2	2-300/B2@10	Feb. 5, 1998	3.0 [10]	<20	150
	2-300/B2@15	Feb. 5, 1998	4.6 [15]	<20	26
	2-300/B2@20	Feb. 5, 1998	6.1 [20]	<20	49
	2-300/B2@25	Feb. 5, 1998	7.6 [25]	<20	13
Borehole 3	2-300/B3@10	Feb. 9, 1998	3.0 [10]	<10	7
	2-300/B3@15	Feb. 9, 1998	4.6 [15]	<10	4
	2-300/B3@20	Feb. 9, 1998	6.1 [20]	<10	10
	2-300/B3@25	Feb. 9, 1998	7.6 [25]	<10	0

Notes:

TPH¹ - Total petroleum hydrocarbons analyzed using US EPA Method 8015 Modified, as diesel.

Borehole B1* - The PetroFLAG™ result at 3.0 m (10 ft) was >2,000 ppm. All other results reported in table above.

mg/kg - milligrams per kilogram

ppm - parts per million

State regulatory requirements - The state regulatory requirement affecting the closure of CAS 02-02-03 is the requirement of the NAC 459.9973, Action by Division When Excessive Petroleum Is Present in Soil, referred to as "A through K."

Depth of groundwater (A) - Depth to groundwater at the site is estimated to be at 597 m (1,960 ft) bgs. The estimated depth is based on the regional general potentiometric surface map provided in the DOE Environmental Impact Statement (US DOE, 1996c).

Distance to irrigation or drinking water wells (B) - The nearest water supply is located at inactive Well 2, approximately 3.0 kilometers (km) (1.9 miles [mi]) from the site. The static water level in 1984 was measured at 736 m (2,416 ft) bgs (RSN, 1986).

Type of soil (C) - Soils identified during the drilling activities consisted of clayey gravel to gravelly clay and silty sand.

Annual precipitation (D) - Annual rainfall in the site vicinity over a three-year period (February, 1960 to August 1964) is tabulated in the report, Daily, Seasonal, and Annual Precipitation At The Nevada Test Site, Nevada (DRI, 1986). The data was collected from "Station 353" and had a recorded average annual precipitation of 10.9 cm (4.31 in) for the time period measured (DRI, 1986).

Type of regulated substance released (E) - The tank formally located at the site was used to store diesel fuel for generators used at the bunker. TPH as diesel were identified in soil samples collected below the south bottom of the tank at maximum concentrations of 9,600 mg/kg.

Extent of contamination (F) - The extent of impacted soils was determined from the drilling activities conducted in February 1998. The vertical extent of impact does not extend below a depth of 6.1 m (20 ft) bgs. The lateral extent was defined by two boreholes to the south and southwest of the release area. Based on analytical data and field observations, the lateral extent was defined by B2, located 5.5 m (18 ft) south of the release area and by B3 located 8.2 m (27 ft) southwest of the release area. TPH was not detected above the MDL in the samples collected from Boreholes B2 (< 20 mg/kg) and B3, (<10 mg/kg) each drilled to a depth of 7.9 m (26 ft) bgs.

Present and potential land use (G) - The site is located adjacent to the 2-300 Bunker Complex. The bunker and immediate surrounding area is currently used intermittently by testing laboratories. Since the bunker interior has been refurbished and is powered by electricity, it is anticipated that it will continue to be used in the future.

Preferred routes of migration/exposure pathways of concern (H) - Since the release originated from a UST, surface migration is not a concern. The most likely route of migration, confirmed by the drilling data, would be vertically. However, it was determined that the vertical extent is minimal and due to the depth of groundwater, low amount of annual precipitation, large

amount of evaporation, and the low TPH concentrations, it is unlikely that hydrocarbons would reach groundwater.

The site does not have an immediate inhalation or contact exposure pathway since the impacted soils are below the ground surface. In addition, the plume was defined to extend beneath the sloped embankment, asphalt covered bunker access, and the former generator room. Physical or dermal contact from the impacted soil will not occur unless excavation activity is completed within the tank area. Volatile organic compounds (VOCs) were not identified as an exposure concern during past excavation and drilling activities; therefore, inhalation of VOCs is not an expected pathway.

Location of structures or impediments (I) - The nearest structure to the release site is the bunker complex which borders the former tank area on the west (Figure 2). The other impediment is the narrow vehicle or equipment accessibility to the site.

Potential for hazard related to fire, vapor, or explosion (J) - The potential for fire, vapor ignition, or explosion at the site as a result of this release is extremely low. All of the impacted soils are below ground surface and are impacted with weathered diesel. Headspace measurements of impacted soil collected during site investigations were very low and support the conclusion that VOCs do not exist at the site at concentrations to support combustion.

Other factors specific to the site (K) - The following are additional factors specific to the site which should be considered in the evaluation for closure:

- The fuel tank was closed by removal in 1996 eliminating the original source of the subsurface release. In addition, during the tank removal and subsequent remedial and characterization activities, approximately 38 (m³) (50 yd³) of hydrocarbon-impacted soils were removed from the site. This reduced the volume of impacted soils as well as those soils with the highest hydrocarbon concentration.
- The site is located within the secured boundaries of the NTS. The area surrounding the site has craters from former underground nuclear testing activities in Area 2. The likelihood that the site will be used for future private use is very low.
- No other constituents of concern were identified at this release site and the concentrations of the petroleum hydrocarbons (diesel) detected decreased with depth and were not found to be at depths greater than 6.1 m (20 ft) bgs.

4.2 RELEASE SITE 9-300-1 (CAS 09-02-01)

Soils at the site consisted of medium brown silty sand with minor gravels. Minor soil staining and odors were noted in a location where a portion of the former product lines entered the bunker footing. However, the remaining portion of the lines were removed and no staining or odors were noted below the product lines.

One soil sample was collected from the south bottom of the remedial excavation. TPH as diesel was not detected (<10 mg/kg) in the soil sample collected. In addition, the PetroFLAG™ and OVM screening results were each 0.0 ppm. Laboratory analytical results are provided in Appendix D.

5.0 CONCLUSIONS

Site characterization and remediation was completed at two UST release sites identified as CAU 464. Characterization was completed using drilling equipment to delineate the extent of hydrocarbons at release site 2-300-1 (CAS 02-02-03). Clean closure was completed using a backhoe at release site 9-300-1 (CAS 09-02-01).

At the 2-300 release site, the vertical extent of impacted soil was determined not to extend below a depth of 6.1 m (20 ft) bgs. The lateral extent was defined by two boreholes and was determined not to extend beyond a maximum distance of 8.2 m (27 ft) from the release site. Based on the site observations, the low hydrocarbon concentrations detected, and the delineation of the vertical and lateral extent of subsurface hydrocarbons, an "A through K" evaluation supporting an Administrative Closure of the site was completed. In addition, by completing the tank closure and excavating approximately 38 (m³) (50 yd³) of impacted soil from the site, the source and contributing components to the identified release have been removed.

Clean closure was completed at release site 9-300-1 by excavating an additional 11.5 m³ (15 yd³) of impacted soils. TPH as diesel was not detected (<10 mg/kg) in the soil sample collected approximately 3 m (10 ft) below the location of the former tank south bottom.

Based upon site observations and the soil sample analytical results, it is requested that a Notice of Completion be provided by the NDEP for each of the release CASSs. Upon approval of the closure of the release CASSs, CAU 464 will be promoted from Appendix III to Appendix IV of the FFACO "Closed Corrective Action Units."

6.0 REFERENCES

BN, 1997a, Site Specific Health and Safety Plan for SAFER Closure of Historical UST Release Sites - Areas 2, 9, 12, 23, and 25, prepared by Bechtel Nevada Environmental Remediation Projects.

BN, 1997b, Field Management Plan: CAU 452, 454, 456, and 464 Closure of Historical UST Release Sites, Nevada Test Site, prepared by Bechtel Nevada Environmental Remediation Projects.

BN, 1997c, Closure of Historical UST Release Sites, Construction Work Plan, prepared by Bechtel Nevada Construction.

DRI, 1986, Daily, Seasonal, and Annual precipitation at the Nevada Test Site, Nevada, Desert Research Institute Water Resources Center, Las Vegas, Nevada, September 1986.

FFACO, 1996, Federal Facility Agreement and Consent Order agreed to by the State of Nevada, The US Department of Energy, and the US Department of Defense.

NAC 459.9973, 1996, Nevada Administrative Code, Chapter 459, Presence of excessive petroleum in soil: Evaluation; assessment of risk; corrective action. Carson City, Nevada: Nevada Division of Environmental Protection.

RSN, 1986, Nevada Site Development Plan, Part 1, Raytheon Services, Nevada.

US DOE, 1994, Nevada Environmental Restoration Project, Project Management Plan, Rev.0, Las Vegas, Nevada.

US DOE, 1996a, Nevada Environmental Restoration Project, Health and Safety Plan, Rev.2, Las Vegas, Nevada.

US DOE, 1996b, Nevada Environmental Restoration Project, Industrial Sites, Quality Assurance Project Plan, Nevada Test Site, Nevada, Rev.1, DOE/NV-372, Las Vegas, Nevada.

US DOE, 1996c, Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada, Volume 1, Chapters 1-9, United States Department of Energy, Nevada Operations Office, Las Vegas Nevada, August 1996.

US DOE, 1997, SAFER Work Plan for CAUs 452, 454, 456, and 464 Closure of Historical UST Release Sites, Nevada Test Site August 1997, DOE/NV-11718-133, UC-702. Las Vegas, Nevada, Environmental Restoration Division.

APPENDIX A

UST CLOSURE INFORMATION

Department of Energy

Nevada Operations Office

P.O. Box 98518

Las Vegas, NV 89193-8518

5.6.5
011361

JUL 29 1996

BECHTEL COR REC'D

AUG 7 12 45 PM '96

Paul J. Liebendorfer, P.E., Chief
Bureau of Federal Facilities
Division of Environmental Protection
State of Nevada
333 W. Nye Lane
Carson City, NV 89710

**NOTIFICATION OF CLOSURE FOR NINE ENVIRONMENTAL RESTORATION (ER)
PROGRAM ABANDONED UNDERGROUND STORAGE TANKS (USTS) CAU-418**

Please find enclosed the U.S. Environmental Protection Agency (EPA) Form 7530-1, Notification for Underground Storage Tanks, which identifies nine abandoned USTs that were permanently closed by removal. The USTs were closed under the DOE Nevada Operations Office (DOE/NV) Environmental Restoration Abandoned UST Closure Program (FY 1996). The Intent to Close Notification form for the tanks was submitted by DOE/NV to the NDEP for eight of the nine tanks on November 21, 1995, and the ninth tank on February 12, 1996. The permanently closed tanks are as follows:

2-300-1 (Area 2, Bunker 300)	12-B-2 (Area 12, B Tunnel)	25-3124-1 (Area 25, TTF)
5-617-1 (Area 5, Bunker 617)	12-B-3 (Area 12, B Tunnel)	25-3127-1 (Area 25, CP Cafeteria)
9-300-1 (Area 9, Bunker 300)	23-155-1 (Area 23, Bldg. 155)	26-2201-2 (Area 26, Disassembly Bldg.)

Copies of the laboratory analytical results of soil samples collected below the bottom ends of the tanks are enclosed and summarized in Table 1. Laboratory analyses requested for the soil samples were based on the composition of product inside each tank or process knowledge of the tanks prior use.

The NDEP has been notified that the 2-300-1, 9-300-1, and 12-B-3 tank sites have total petroleum hydrocarbon concentrations in soil which exceed the 100 milligram per kilogram Action Level. The Nevada Division of Emergency Management Case Numbers assigned to the 2-300-1, 9-300-1, and 12-B-3 sites are 960603-771, 960701-849, and 960722-02, respectively. Additional soil sampling at each of the sites is required to further evaluate site conditions.

96. JUL 29 1996

ENS 10
x MHS 20
closure

011361

Paul J. Liebendorfer

-2-

JUL 29 1996

If you have any questions, please contact Sabine T. Curtis at 295-0542.

Original Signed By

David S. Shafer, Acting Director
Environmental Restoration Division

ERD:STC

Enclosure:

As stated *filed in ENSID*

cc w/encl:

V. D. Mireau, NDEP, Las Vegas, NV

G. J. Sieren, NDEP, Las Vegas, NV

bcc w/encl:

D. D. Madsen, BN, Mercury, NV

S. J. Nacht, BN, Mercury, NV

S. T. Curtis, ERD, DOE/NV,
Las Vegas, NV

bcc w/o encl:

D. S. Shafer, ERD,

DOE/NV, Las Vegas, NV

P. L. Hall, ERD,

DOE/NV, Las Vegas, NV

011361

**ENVIRONMENTAL RESTORATION PROGRAM
ABANDONED UNDERGROUND STORAGE TANKS (FY96)
NOTIFICATION OF CLOSURE**

011361

CMS NO. 2050-0068 Approval Expires 1/31/95
EPA Form 7530-1 (Revised 9/83)

Notification for Underground Storage Tanks		STATE USE ONLY
State Agency Name and Address Capital Complex - 201 S. Fall Street, Carson City, Nevada 89710		ID NUMBER
TYPE OF NOTIFICATION		DATE RECEIVED
☐ A. NEW FACILITY ☐ B. AMENDED ☒ C. CLOSURE		A. Date Entered Into Computer
146 No. of tanks at facility No. of continuation sheets attached		B. Data Entry Clerk Initials
INSTRUCTIONS		C. Owner Was Contacted to Clarify Responses, Comments
Please type or print in ink all items except "signature" in section V. This form must be completed for each location containing underground storage tanks. If more than five (5) tanks are owned at this location, photocopy the following sheets, and staple continuation sheets to the form.		

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means-

a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

b) in the case of any underground storage tank in use before November 8, 1984, but no longer is in use on that date, any person who owned such tank immediately before the discontinuation of its use.

c) if the State agency so requires, any facility that has undergone any changes to facility information or tank system status (only amended tank information needs to be included).

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. Gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;

3. septic tanks
4. pipeline facilities (including gathering lines) regulated under the Natural Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1970 which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where to Notify? Send completed forms to:

When to Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use. 3. If the State requires notification of any amendments to facility information, the owner must immediately notify the State agency.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed \$10,000 for each tank for which notification is not given or for which false information is submitted.

I. OWNERSHIP OF TANK(S)		II. LOCATION OF TANK(S)	
Owner Name (Corporation, Individual, Public Agency, or Other Entity) DOE Field Office, Nevada		If required by State, give the geographic location of tanks by degrees, minutes, and seconds Examples Lat. 42,36, 12 N Long. 85,24, 17W	
Street Address Post Office Box 98518		Latitude <u>Not Applicable</u> Longitude <u>Not Applicable</u>	
		(If same as Section I, mark box here ☐)	
City State ZIP Code Las Vegas, Nevada 89193-8518		Facility Name or Company Site Identifier, as applicable Nevada Test Site	
County Clark		Street Address (P.O. Box not acceptable) Highway 95	
Phone Number (Include Area Code) (702) 295-1860		City State ZIP Code Mercury, Nevada 89093	
Page 1		County Municipality Nye	

III. TYPE OF OWNER		IV. INDIAN LANDS	
☒ Federal Government ☐ State Government ☐ Local Government	☐ Commercial ☐ Private	Tanks are located on land within an Indian Reservation or on other trust lands. ☐ Tanks are owned by native American nation, tribe, or individual. ☐	Tribe or Nation: _____
V. TYPE OF FACILITY			
Select the Appropriate Facility Description			
☐ Gas Station ☐ Petroleum Distributor ☐ Air Taxi (Airline) ☐ Aircraft Owner ☐ Auto Dealership	☐ Railroad ☒ Federal - Non-Military ☐ Federal - Military ☐ Industrial ☐ Contractor	☐ Trucking/Transport ☐ Utilities ☐ Residential ☐ Farm ☐ Other (Explain) _____	
VI. CONTACT PERSON IN CHARGE OF TANKS			
Name	Job Title	Address	Phone Number (Include Area Code)
Kenneth A. Hoar	Director	Environmental Protection Division Post Office Box 98518 Las Vegas, NV 89193-8518	(702) 295-1428
VII. FINANCIAL RESPONSIBILITY			
I have met the financial responsibility requirements in accordance with 40 CFR Subpart H			EXEMPT
Check All That Apply			
☐ Self Insurance ☐ Commercial Insurance ☐ Risk Retention Group	☐ Guarantee ☐ Surety Bond ☐ Letter of Credit	☐ State Funds ☐ Trust Fund ☐ Other Method Allowed Specify _____	
VIII. CERTIFICATION (Read and sign after completing all sections)			
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.			
Name and official title of owner or owner's authorized representative (Print)	Signature	Date Signed	
Kenneth A. Hoar, Director		7/31/96	
EPA estimates public reporting burden for this form to average 30 minutes per response including time for reviewing instructions, gathering and maintaining the data needed and completing and reviewing the form. Send comments regarding this burden estimate to Chief, Information Policy Branch PM-223, U. S. Environmental Protection Agency, 401 M Street, Washington D. C. 20460, marked "Attention Desk Officer for EPA." This form amends the previous notification form as printed in 40 CFR Part 280, Appendix I. Previous editions of this notification form may be used while supplies last.			

IX. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)					
Tank Identification Number	2-300-1	5-617-1	9-300-1	12-B-2	12-B-3
1. Status of Tank (mark only one)					
Currently in Use	☐	☐	☐	☐	☐
Temporarily Out of Use (Remember to fill out section X)	☐	☐	☐	☐	☐
Permanently Out of Use (Remember to fill out section X)	☒ XX	☒ XX	☒ XX	☒ XX	☒ XX
Amendment of Information (Identified as Abandoned)	☐	☐	☐	☐	☐
2. Date of Installation (mo./year)	1957 Est.	1962 Est.	1957 Est.	1957 Est.	1957 Est.
3. Estimated Total Capacity (gallons)	800	300	800	300	650
4. Material of Construction (Mark all that apply)					
Asphalt Coated or Bare Steel	☒ XX	☒ XX	☒ XX	☒ XX	☒ XX
Cathodically Protected Steel	☐	☐	☐	☐	☐
Epoxy Coated Steel	☐	☐	☐	☐	☐
Composite (Steel with fiberglass)	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Lined Interior	☐	☐	☐	☐	☐
Double Walled	☐	☐	☐	☐	☐
Polyethylene Tank Jacket	☐	☐	☐	☐	☐
Concrete	☐	☐	☐	☐	☐
Excavation Liner	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify	☐	☐	☐	☐	☐
Has Tank Been Repaired ?	☐ Not Deter.	☐ Not Deter.	☐ Not Deter.	☐ Not Deter.	☐ Not Deter.
5. Piping (Material) (Mark all that apply)					
Bare Steel	☐	☐	☐	☒ XX	☐
Galvanized Steel	☒ XX	☒ XX	☒ XX	☐	☒ XX
Epoxy Coated Steel	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Copper	☒ XX	☐	☒ XX	☒ XX	☐
Cathodically Protected	☐	☐	☐	☐	☐
Double Walled	☐	☐	☐	☐	☐
Secondary Containment	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify	☐	☐	☐	☐	☐
6. Piping (Type) (Mark all that apply)					
Suction: no valve at tank	☒ XX	☐	☒ XX	☐	☐
Suction: valve at tank	☐	☐	☐	☐	☐
Pressure	☐	☐	☐	☐	☐
Gravity Feed	☐	☒ XX	☐	☒ XX	☒ XX
Has Piping Been Repaired ?	☐ Not Deter.	☐ Not Deter.	☐ Not Deter.	☐ Not Deter.	☐ Not Deter.

Tank Identification Number	2-300-1	5-617-1	9-300-1	12-B-2	12-B-3
7. Substance Currently Used or Last Stored In Greatest Quantity by volume					
Gasoline					
Diesel	XX	XX	XX		
Gasohol					
Kerosene					
Heating Oil					
Used Oil					
Other, Please Specify					
Hazardous Substance					
CERCLA Name and/or, CAS number					
Mixture of Substances					
Please Specify				Unknown	Unknown
X. TANKS OUT OF USE, OR CHANGE IN SERVICE					
1. Closing of Tank					
A. Estimated Date Last Used (mo./day/year)	Not Deter.	Not Deter.	Not Deter.	Not Deter.	Not Deter.
B. Estimated Date Tank Closed (mo./day/year)	4/30/96 REMOVED	5/8/96 REMOVED	5/2/96 REMOVED	5/6/96 REMOVED	5/6/96 REMOVED
C. Tank Was Removed From Ground	XX	XX	XX	XX	XX
D. Tank Was Closed In Ground					
E. Tank Filled With Inert Material Describe					
F. Change In Service					
2. Site Assessment Completed	Yes	Yes	Yes	Yes	Yes
Evidence Of A Leak Detected	Yes 960603-771	No	Yes 960701-849	No	Yes 960722-02

Installer:	Not Applicable		
	Name	Signature	Date
	Position	Company	

IX. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)					
Tank Identification Number	23-155-1	25-3124-1	25-3127-1	26-2201-2	
1. Status of Tank (mark only one)					
Currently in Use					
Temporarily Out of Use (Remember to fill out section X)					
Permanently Out of Use (Remember to fill out section X)	XX	XX	XX	XX	
Amendment of Information (Identified as Abandoned)					
2. Date of Installation (mo./year)	1958 Est.	Not. Deter.	11/61	Not. Deter.	
3. Estimated Total Capacity (gallons)	1,000	1,600	3,000	1,500	
4. Material of Construction (Mark all that apply)					
Asphalt Coated or Bare Steel	XX	XX	XX	XX	
Cathodically Protected Steel					
Epoxy Coated Steel					
Composite (Steel with fiberglass)					
Fiberglass Reinforced Plastic					
Lined Interior					
Double Walled					
Polyethylene Tank Jacket					
Concrete					
Excavation Liner					
Unknown					
Other, Please Specify					
Has Tank Been Repaired ?	Not Deter.	Not Deter.	Not Deter.	Not Deter.	
5. Piping (Material) (Mark all that apply)					
Bare Steel					
Galvanized Steel				XX	
Epoxy Coated Steel					
Fiberglass Reinforced Plastic					
Copper	XX		XX		
Cathodically Protected					
Double Walled					
Secondary Containment					
Unknown					
Other, Please Specify		PVC			
6. Piping (Type) (Mark all that apply)				Not Deter.	
Suction: no valve at tank	XX		XX		
Suction: valve at tank					
Pressure					
Gravity Feed		XX			
Has Piping Been Repaired ?	Not Deter.	Not Deter.	Not Deter.	Not Deter.	

XI. CERTIFICATION OF COMPLIANCE (COMPLETE FOR ALL NEW AND UPGRADED TANKS AT THIS LOCATION)

Tank Identification Number	23-155-1		25-3124-1		25-3127-1		26-2201-2			
1. Installation	Not Applicable		Not Applicable		Not Applicable		Not Applicable			
A. Installer certified by tank and piping manufactures	☐		☐		☐		☐		☐	
B. Installer certified or licensed by the implementing agency	☐		☐		☐		☐		☐	
C. Installer inspected by a registered engineer	☐		☐		☐		☐		☐	
D. Installer inspected and approved by implementing agency	☐		☐		☐		☐		☐	
E. Manufacture's installation checklist have been completed	☐		☐		☐		☐		☐	
F. Another method allowed by State agency. Please specify.	☐		☐		☐		☐		☐	
2. Release Detection (Mark all that apply)	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING
A. Manual tank guaging	☐		☐		☐		☐		☐	
B. Tank tightness testing	☐		☐		☐		☐		☐	
C. Inventory controls	☐		☐		☐		☐		☐	
D. Automic tank guaging	☐		☐		☐		☐		☐	
E. Vapor monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
F. Groundwater monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
G. Interstitial monitoring double walled tank/piping	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
H. Interstitial monitoring/secondary containment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
I. Automic line leak detectors	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
J. Line tightness testing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
K. Other method allowed by Implementing Agency, Please specify.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Spill and Overfill Protection	☐		☐		☐		☐		☐	
A. Overfill device installed	☐		☐		☐		☐		☐	
B. Spill device installed	☐		☐		☐		☐		☐	

OATH: I certify the information concerning installation that is provided in section XI is true to the best of my belief and knowledge.

Installer:	Not Applicable		
	Name	Signature	Date
	Position	Company	

Tank Identification Number	23-155-1	25-3124-1	25-3127-1	26-2201-2	
7. Substance Currently Used or Last Stored In Greatest Quantity by volume					
Gasoline					
Diesel			XX		
Gasohol					
Kerosene					
Heating Oil					
Used Oil					
Other, Please Specify	Fuel Oil	Waste Water		Waste Water	
Hazardous Substance					
CERCLA Name and/or, CAS number					
Mixture of Substances					
Please Specify					
X. TANKS OUT OF USE, OR CHANGE IN SERVICE					
1. Closing of Tank					
A. Estimated Date Last Used (mo./day/year)	Not Deter.	Not Deter.	Not Deter.	Not Deter.	
B. Estimated Date Tank Closed (mo./day/year)	5/30/96 REMOVED	5/16/96 REMOVED	5/16/96 REMOVED	5/9/96 REMOVED	
C. Tank Was Removed From Ground	XX	XX	XX	XX	
D. Tank Was Closed In Ground					
E. Tank Filled With Inert Material Describe					
F. Change In Service					
2. Site Assessment Completed	Yes	Yes	Yes	Yes	
Evidence Of A Leak Detected	No	No	No	No	

APPENDIX B

DISPOSAL DOCUMENTATION

2-300 SITE

STRAIGHT BILL OF LADING
ORIGINAL—NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

Page 1 of 1BN Construction

(Name of carrier)

(SCAC)

Date 2-18-98

On Collect on Delivery shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.

TO:

Consignee

NWO A-6 HYDROCARBON Landfill

Street

NTS AREA 6

City

State

Zip Code

FROM:

Shipper

AREA 6-Well 3 YARD

Street

BN FR DRUM STORAGE AREA

City

NTS

State

Zip Code

24 hr. Emergency Contact Tel. No. _____

Route

Vehicle

Number

83363No. of Units
& Container Type

HM

BASIC DESCRIPTION

Proper Shipping Name, Hazard Class,
Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.203TOTAL QUANTITY
(Weight, Volume,
Gallons, etc.)WEIGHT
(Subject to
Correction)

RATE

CHARGES
(For Carrier
Use Only)16 V55 GAL DRUMS w/ HYDROCARBONIMPACTED SOILS.- WASTE TRACKING NOS:BN-0343; 0344, 0345,- 0346[Signature]PLACARDS TENDERED: YES ☐ NO ☐

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

\$ _____ per _____

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by ☐ Rail ☐ Highway ☐ Water (DELETE NON-APPLICABLE MODE OF TRANSPORT) according to applicable international and national governmental regulations.[Signature]REMIT
C.O.D. TO:
ADDRESS

COD

Amt: \$ _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

C.O.D. FEE:
PREPAID ☐
COLLECT ☐ \$ _____TOTAL
CHARGES: \$ _____FREIGHT CHARGES
FREIGHT PREPAID ☐ Check box if charges are to be collected
FREIGHT COLLECT ☐ Check box if charges are to be collected

RECEIVED, subject to the classifications and carefully filed tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of

said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIPPER

JERRY BROWN

CARRIER

Bochtel

SHIPPER

BN-ENVIR. RESTORATION

PER

Jack Pass

DATE

2/18/98

Permanent post-office address of shipper: _____

STYLE F85 LABELMASTER, An American Labelmark Co., Chicago, IL 60644 800/821-5806

WEIGH TICKET
GATE 100 INSPECTION STATION

REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
POST OFFICE BOX 98521 • LAS VEGAS, NV 89193-8521

005260

NO.

PROPERTY REMOVAL NO.

COMMODITY Hydro Carbon

FROM A-25

DATE 2-12-98

CUSTOMER NO.

P/O

SHIPPER

DELIVER TO A-6 - WELLS

AREA

A-25

VEHICLE LICENSE NO. 83363

TRUCK NO.

83363

TRAILER(S) LICENSE NO. A/A

DRIVER'S SIGNATURE (IN) [Signature]

DRIVER'S SIGNATURE (OUT)

[Signature]

32620
14820
19800

LBS. GROSS — DRIVER OFF

LBS. TARE — DRIVER OFF

LBS. NET

GROSS-VERIFIED

WEIGHMASTER'S SIGNATURE

SUPERVISOR'S SIGNATURE

TARE-VERIFIED

WEIGHMASTER'S SIGNATURE

SUPERVISOR'S SIGNATURE

RE-8632 (8/89)

WEIGH TICKET

GATE 100 INSPECTION STATION

REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
POST OFFICE BOX 98521 • LAS VEGAS, NV 89193-8521

005261

NO.

PROPERTY REMOVAL NO.

COMMODITY Hydro Carbon

FROM A-2

DATE 2/12/98

CUSTOMER NO.

P/O

SHIPPER

DELIVER TO A-6 Landfill

AREA

83363

TRAILER(S) LICENSE NO.

VEHICLE LICENSE NO.

TRUCK NO.

83363

DRIVER'S SIGNATURE (OUT)

DRIVER'S SIGNATURE (IN) [Signature]

DRIVER'S SIGNATURE (OUT)

[Signature]

G+020440 1b CR LIVE

T+003000 1b CR RPTA

N+017440 1b

CH 32

→ 5,620

CH 32

14820 LI.WT.

LBS. GROSS — DRIVER OFF

LBS. TARE — DRIVER OFF

LBS. NET

GROSS-VERIFIED

WEIGHMASTER'S SIGNATURE

SUPERVISOR'S SIGNATURE

TARE-VERIFIED

WEIGHMASTER'S SIGNATURE

SUPERVISOR'S SIGNATURE

RE-8632 (8/89)

DATE: 2-18-98 NO. A 5797

Reynolds Electrical & Engineering Co., Inc.
Radiological Control Department-Ramatrol

Material Clearance

MONITOR: Mc Closkey

ORGANIZATION: BN ENL

SURVEY LOCATION: A-6

FROM: A-6

TO: A-6 Hydrocarbon IMPACTED

☒ UNRESTRICTED

☐ OFF-SITE

☐ ON-SITE

☐ SALVAGE

☐ EXCESS

THIS MATERIAL HAS BEEN SURVEYED FOR
RADIOACTIVITY AND MEETS DOE
STANDARDS FOR RELEASE TO PUBLIC
USE

INITIAL

gri

☐ CONTROLLED

DESCRIPTION: _____

16 ea Batteries of
Hydrocarbon IMPACTED
SAIC

REMARKS: _____

EXP-2-25-98

DATE: 2-18-98 NO. A 5789

Reynolds Electrical & Engineering Co., Inc.
Radiological Control Department-Ramatrol

Material Clearance

MONITOR: Mc Closkey

ORGANIZATION: BN ENL

SURVEY LOCATION: A-6

FROM: A-6

TO: A-6 Hydrocarbon IMPACTED

☒ UNRESTRICTED

☐ OFF-SITE

☒ ON-SITE

☐ SALVAGE

☐ EXCESS

THIS MATERIAL HAS BEEN SURVEYED FOR
RADIOACTIVITY AND MEETS DOE
STANDARDS FOR RELEASE TO PUBLIC
USE

INITIAL

gri

☐ CONTROLLED

DESCRIPTION: _____

19 ea BATTERIES OF
Hydrocarbon IMPACTED
SAIC

REMARKS: _____

EXP-2-25-98

9-300 SITE

GIVEN TAG
NO. 5669U10C DISPOSAL SITE
LOAD VERIFICATION DOCUMENT

LOAD 2 of 2

Waste Generator

BN Environmental Restoration

Source

Remanose of 12-Conn-1, Drums from 12-B-1, & Soil Piles from 9-300-1

Contents

HYDROCARBON IMPACTED SOILS. DISPOSAL APPROVED THROUGH
MARSHALL LAB OF WMP.

Method of Characterization:

Process Knowledge

Sampling and Analysis

Minimization/Segregation

Prohibited Wastes - The following wastes are prohibited from disposal at this site

Radioactive Waste

Medical Waste (needles,
sharps, bloody clothing)

Animal carcasses

Garbage (food waste)

Sewage sludge

Friable asbestos

PCBs (other than light
ballasts)

"Free liquids"

Allowable Wastes - Construction debris containing non-putrescible and highly, inert waste consistent with the following examples

Asphalt

Insulation

Metal

Wood

Rubber

Plastic

Cloth

Paper

Pipe

Rocks

Non-hydrocarbon
burdened soil

Concrete

Cable and wire

Empty containers

Decommed underground
and above ground tanks

Non-friable asbestos

Automobiles and
Military Vehicles

BRADY NOS.

BN-0394(12-Conn-1)
BN-0395(12-Conn-1)
BN-0396(9-300-1)

To the best of my knowledge, the waste described above contains only those materials which are allowed to be disposed of at this disposal site. I have verified this through the waste characterization method identified above and a review of those prohibited and allowable waste items.

Print Name

JERRY BONN

Signature

Jerry Bonn

Date

12-9-97

UNIFORM STRAIGHT BILL OF LADING Original—Not Negotiable—Domestic

Shipper's #

Carrier

Agent's No.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading,

at Dec 7 19 97 from AL2 E ARSA 9

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown) marked, consigned and destined as shown below, which said Company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own railroad, water line, highway route or routes, or within the territory of its highway operations, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

(Mail or street address of consignee—For purposes of notification only.)

Consigned to VIDE LANDFILL

Destination NTS State of NV Zip Code _____ County of NYE

Routing _____ Delivering Carrier _____ Vehicle or Car Initial _____ No. _____

Collect On Delivery

\$ _____ and remit to: Rec'd 12/9/97 C. O. D.

C. O. D. charge to be paid by

Shipper ☐ Consignee ☐

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statements:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor.)

If charges are to be prepaid, write or stamp here, "TO BE PREPAID."

Received \$ _____ to apply to prepayment of the charges on the property described hereon.

Agent or Cashier

Per _____
(the signature here acknowledges only the amount Prepaid.)

Charges Advanced:

\$ _____

No. Packages	Description of Articles, Special Marks, and Exceptions	Weight (Sub. to Cor.)	Class or Rate	Check Column
1	BROWN VAL BUN - 0394 - 0395			
	E - 0396 - Hydrocarbon			
	CONTAINERS SOLID			
	- 20 cys - Lard 20 cys			
	GREEN TAG NO. 5669			
	<i>[Signature]</i>			

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight." NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

per

Shipper, Per _____ Agent, Per _____

Permanent post-office address of shipper, _____

(This Bill of Lading is to be signed by the shipper and agent of the carrier issuing same.)

Bill of Lading

1

WEIGH TICKET

GATE 100 INSPECTION STATION

REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
POST OFFICE BOX 98521 • LAS VEGAS, NV 89193-8521NO. 004708

PROPERTY REMOVAL NO. _____

COMMODITY Wipacumbo FROM A-12 DATE 12/8/97CUSTOMER NO. _____ () P/O _____ () SHIPPER BechtelDELIVER TO DOCHANDAIL () AREA 9 () BLDG. NO. _____VEHICLE LICENSE NO. _____ TRUCK NO. 84841 TRAILER(S) LICENSE NO. _____DRIVER'S SIGNATURE (IN) Frank El DRIVER'S SIGNATURE (OUT) Frank El56860 GR LBS
35940 TARE LBS
20920 NET LBS

LBS. GROSS — DRIVER OFF ()

LBS. TARE — DRIVER OFF ()

LBS. NET

GROSS-VERIFIED () WEIGHMASTER'S SIGNATURE [Signature]TARE-VERIFIED () WEIGHMASTER'S SIGNATURE [Signature]SUPERVISOR'S SIGNATURE Posted 12/11/97SUPERVISOR'S SIGNATURE ccg

APPENDIX C

2-300-1 BOREHOLE LOGS

PROJECT: CAU 464, CAS 02-02-03

GEOLOGIST/LOGGER: J.F. Bonn

LOCATION: Area 2 Bunker 300

DRILLING COMPANY: Bechtel Nevada

BEGINNING DATE: February 4, 1998

DRILL RIG MODEL: Mobile Drill B-59

ENDING DATE: February 4, 1998

DRILLING METHOD: Hollow-stem auger

GROUND SURFACE ELEVATION:
Approx. 4460 feet above mean sea levelSAMPLING METHOD: Split-spoon sampler (2-feet long
by 2.5-inches in diameter) driven with 140-pound
30-inch drop hammer

BOREHOLE DIAMETER: 7 inches

BOREHOLE COMPLETION: Backfilled with sand to
approx. 5 feet below ground surface and capped with
bentonite and concrete

DEPTH feet (meters)	OVM ppm	PETRO FLAG ppm	SAMPLE INTERVAL	GRAPHIC LOG	SOIL DESCRIPTION
0					Ground Surface
5 (1.5)					0 to approx. 18 ft. CLAYEY GRAVEL (GC): Brown (7.5YR4/4); 40% low-plasticity fines; 60% fine to coarse gravel; damp, no hydrocarbon odor.
10 (3.0)	104	>2000			At 8 ft: Strong hydrocarbon odor. At 10 ft: As above, 35% low-plasticity fines; 30% fine to coarse sand; 35% fine to coarse gravel; damp to moist, strong hydrocarbon odor.
15 (4.6)	46.8	825			At 15 ft: 40% slightly-plastic to low-plasticity fines; 25% fine to coarse sand; 35% fine to coarse gravel; damp, moderate hydrocarbon odor.
20 (6.1)	0	0			Approx. 18 to approx. 23 ft. SILTY SAND (SM): Brown (7.5YR5/4); 30% slightly-plastic fines; 55% fine to coarse sand; 15% predominantly-fine (to coarse) gravel; damp, slight hydrocarbon odor.
25 (7.6)	0	0			Approx. 23 to 28 ft. CLAYEY GRAVEL (GC): Brown (7.5YR5/4); 30% slightly-plastic to low-plasticity fines; 25% fine to coarse sand; 45% fine to coarse gravel; damp, slight hydrocarbon odor.
30 (9.1)	0	7			Approx. 28 to 31 ft. GRAVELLY CLAY (CL): Brown (7.5YR4/3); 60% slightly-plastic to low-plasticity fines; 20% fine to coarse sand; 20% fine to coarse gravel; damp, no hydrocarbon odor.
Drilling Terminated At 31 Feet.					

PROJECT: CAU 464, CAS 02-02-03

GEOLOGIST/LOGGER: J.F. Bonn

LOCATION: Area 2 Bunker 300

DRILLING COMPANY: Bechtel Nevada

BEGINNING DATE: February 5, 1998

DRILL RIG MODEL: Mobile Drill B-59

ENDING DATE: February 5, 1998

DRILLING METHOD: Hollow-stem auger

GROUND SURFACE ELEVATION:
Approx. 4460 feet above mean sea level

SAMPLING METHOD: Split-spoon sampler (2-feet long by 2.5-inches in diameter) driven with 140-pound 30-inch drop hammer

BOREHOLE DIAMETER: 7 inches

BOREHOLE COMPLETION: Backfilled with sand to approx. 5 feet below ground surface and capped with bentonite and concrete

BOREHOLE TOTAL DEPTH: 26 feet

DEPTH feet (meters)	OV ppm	PETRO FLAG ppm	SAMPLE INTERVAL	GRAPHIC LOG	SOIL DESCRIPTION
0					Ground Surface
5 (1.5)					0 to approx. 18 ft. CLAYEY GRAVEL (GC) to GRAVELLY CLAY (CL): Brown (7.5YR4/3); 35% slightly-plastic fines; 20% fine to coarse sand; 45% fine to coarse gravel; damp, no hydrocarbon odor.
10 (3.0)	0	150			At 10 ft: As above, 40% slightly-plastic fines; 30% fine to coarse sand; 30% fine to coarse gravel to >2 inches.
15 (4.6)	0	26			At 15 ft: 30% slightly-plastic fines; 30% fine to coarse sand; 40% fine to coarse gravel.
20 (6.1)	0	49			Approx. 18 to 26 ft. SILTY SAND (SM): 30% slightly-plastic fines; 40% fine to coarse sand; 30% fine to coarse gravel to >2 inches; damp, no hydrocarbon odor.
25 (7.6)	0	13			At 25 ft: As above.
30 (9.1)					Drilling Terminated At 26 Feet.

PROJECT: CAU 464, CAS 02-02-03**GEOLOGIST/LOGGER:** J.F. Bonn**LOCATION:** Area 2 Bunker 300**DRILLING COMPANY:** Bechtel Nevada**BEGINNING DATE:** February 9, 1998**DRILL RIG MODEL:** Mobile Drill B-59**ENDING DATE:** February 9, 1998**DRILLING METHOD:** Hollow-stem auger**GROUND SURFACE ELEVATION:**
Approx. 4460 feet above mean sea level**SAMPLING METHOD:** Split-spoon sampler (2-feet long
by 2.5-inches in diameter) driven with 140-pound
30-inch drop hammer**BOREHOLE DIAMETER:** 7 inches**BOREHOLE COMPLETION:** Backfilled with sand to
approx. 5 feet below ground surface and capped with
bentonite and concrete

DEPTH feet (meters)	OVM ppm	PETRO FLAG ppm	SAMPLE INTERVAL	GRAPHIC LOG	SOIL DESCRIPTION
0					Ground Surface
5 (1.5)					0 to 26 ft. CLAYEY GRAVEL (GC) to GRAVELLY CLAY (CL): Brown (7.5YR4/3); 40% slightly-plastic fines; 35% fine to coarse sand; 35% fine to coarse gravel; damp, no hydrocarbon odor. At 10 ft: As above, 40% non-plastic fines; 30% fine to coarse sand; 30% fine to coarse gravel. At 15 ft: As above, 30% slightly-plastic fines; 30% fine to coarse sand; 40% fine to coarse gravel. At 20 ft: As above. At 25 ft: As above, proportion of gravel decreases to 20%..
10 (3.0)	0	7			
15 (4.6)	0	4			
20 (6.1)	0	10			
25 (7.6)	0	0			
30 (9.1)					Drilling Terminated At 26 Feet.

APPENDIX D

LABORATORY ANALYTICAL DATA

NEL LABORATORIES

Reno • Las Vegas
Phoenix • Burbank

Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

CLIENT: Bechtel Nevada Corp.
P.O. Box 98521, M/S NTS273
Las Vegas, NV 89193-8521
ATTN: Ted Redding

PROJECT NAME: NA
PROJECT NUMBER: PO 16874

NEL ORDER ID: L9711185

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 11/20/97.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.
Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.
Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

Some results have been flagged as follows:

JI - The batch MS and/or MSD were outside acceptance limits. The batch LCS was acceptable.

Stan Van Wagenen
Laboratory Manager

12/1/97
Date

CERTIFICATIONS:

	Reno	Las Vegas	Burbank
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified

	Reno	Las Vegas	Burbank
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

**TOTAL
PETROLEUM
HYDROCARBON
RESULTS**

NEL LABORATORIES

CLIENT: Bechtel Nevada Corp.
PROJECT NAME: NA
PROJECT NUMBER: PO 16874

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, July 1992
METHOD: EPA 8015M
MATRIX: Soil

ANALYST: John

CLIENT SAMPLE ID	SAMPLE DATE	NEL SAMPLE ID	RESULT mg/kg	Reporting Limit	Surrogate Recovery*	EXTRACTED	ANALYZED
12-B-1/East	11/18/97	L9711185-01	490 JI**	10.mg/kg	89 %	11/26/97	11/29/97
12-B-/West	11/18/97	L9711185-02	92 JI**	10.mg/kg	92 %	11/26/97	11/28/97
9-300-1/S	11/19/97	L9711185-03	ND JI	10.mg/kg	90 %	11/26/97	11/28/97
12-Comm-1/S9	11/19/97	L9711185-04	ND JI	10.mg/kg	93 %	11/26/97	11/29/97
12-Comm-1/N9	11/19/97	L9711185-05	ND JI	10.mg/kg	88 %	11/26/97	11/29/97

** Diesel Range Organics (C12 to C32).

Note: The reporting limit for Oil Range Organics in soil is 50 mg/kg.

QUALITY CONTROL DATA (Total for Gas and Diesel Range):

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 971126stph -BLK	ND	< 10. mg/kg	92 %	NA
LCS, 971126stph - LCS	89 %	55 - 102 %	99 %	NA
MS, 971126stph - MS	154 %	55 - 102 %	102 %	L9711185-01
MSD, 971126stph - MSD	211 %	55 - 102 %	118 %	L9711185-01

ND - Not Detected

* Surrogate used was Octacosane, acceptance limits 70-130%.

This report shall not be reproduced except in full, without the written approval of the laboratory.

L9711185

BECHTEL NEVADA CORPORATION

12/1

Page 1 of 1

ANALYTICAL SERVICES LABORATORY SERVICES REQUEST AND CHAIN OF CUSTODY

PROJECT INFORMATION

ORG#: 2150 Charge #: C4N-3A0DE

Project #: PO 16874 Funded by: ☒ EM☐ DP

Project Manager: Steve Nacht/ Jerry Bonn

Phone: J. Bonn 295-7341 M/S: NTS306

REPORT INFORMATION

*DATE DUE: 12-1-97 Preliminary ☐ YESReport ☐ NO

*There may be additional charges for reports due in less than the standard turnaround time. See back.

Send Report to: Ted Redding M/S: NTS273

Phone: 295-7220 Fax: 295-4773

LAB USE ONLY

SDG#: V323 12/18/97 PACKET #: W1344

SDG#: PACKET #: R14167

Is the radioactivity level in any of these samples above typical environmental or bioassay levels?

REQUESTER'S SIGNATURE

DATE: 11/20/97

NON-RAD ANALYSIS CODES

RCRA TF = TPH - Full PH = pH
V = VOA TG = TPH - Gas IND HYGIENE
TCLP VOA TD = TPH - Diesel APC = Asb/PCM
B = BNA TO = TPH - Oil APL = Asb/PLM
TB = TCLP BNA M = Metals AT = Asb/TEM
PS = Pesticide TM = TCLP Metals PBF = Pb/filter
P = PCB C = Clor-d-rect G = Gravimetric
PSP = Pest & PCB F = Flashpoint OTHERS - SEE BACK

RAD ANALYSIS CODES

01 = TRITIUM 11 = PU OTHERS -
02 = GROSS ALPHA 13 = TH SEE
03 = GROSS BETA 22 = SR-89 BACK
04 = GAMMA (20 min) 23 = SR-90
05 = GFP 31 = GAMMA (1000 min)
07 = ISO U 33 = GAMMA (300 min)
08 = AM 33 = NAT (KPA)

RAD MATRIX CODES (RAD MC)

SAMPLE COLLECTION LOCATION

Area 12 B Tunnel - Site Location 12-B-1

Area 9 - Site Location 9-300-1

Area 12 Site Location 12-Comm-1

ITEM	ID/DESCRIPTION	RAD MC	ANALYSIS CODES								SAMPLING		MATRIX	COMMENTS Preservative, size/volume, special analysis, count time
											DATE	TIME		
0	12-B-1/East (01)		TD								11/18/97	1400	soil	TPH using 8015M
1	12-B-1/West (02)		TD								11/18/97	1405	soil	TPH using 8015M
2	9-300-1/S (03)		TD								11/19/97	1140	soil	TPH using 8015M
3	12-Comm-1/S9 (04)		TO	TD							11/19/97	1450	soil	TPH using 8015M
	12-Comm-1/N9 (05)		TO	TD							11/19/97	1455	soil	TPH using 8015M
5	23-111/E.Well (06)										11/20/97	0830	air	C10-C20 analysis
6	23-111/W.Well (07)										11/20/97	0840	air	C10-C20 analysis
7														
8														
9														

NON-RAD SAMPLES

SAMPLED/RELINQUISHED (SIG)

DATE / TIME

RECEIVED BY (SIG.)

RAD SAMPLES

SAMPLED/RELINQUISHED (SIG)

DATE / TIME

RECEIVED BY (SIG.)

SAMPLE DELIVERY GROUP: V323CLIENT: RP - JERRY BONNLABORATORY: NELFINAL REPORT RECEIVED: 12/12/97DATE REVIEWED: 12/23/97REVIEWED BY:

TPH - DIESEL / OIL:

MATRIX: SOILARE TPH DIESEL/OIL DATA ACCEPTABLE: YESARE CRITERIA MET

1. QC SAMPLES ACCEPTABLE
2. MATRIX SPIKE ACCEPTABLE
3. METHOD BLANK ACCEPTABLE
4. HOLDING TIMES ACCEPTABLE

YES
SEE COMMENTS
YES
YES

		<u># DAYS</u>	<u>ACCEPTABLE</u>
a. Date Sampled:	<u>11/19/97</u>	<u>0</u>	<u>0</u>
b. Date ASL Received:	<u>N/A</u>	<u>N/A</u>	<u>1</u>
c. Date Contract Lab Received:	<u>11/20/97</u>	<u>1</u>	<u>5</u>
d. Date Extracted:	<u>11/26/97</u>	<u>7</u>	<u>14</u>
e. Date Analyzed:	<u>11/29/97</u>	<u>3</u>	<u>40</u>
5. CALCULATIONS ACCEPTABLE:	<u>YES</u>		
6. CORRECT CONC. UNITS USED:	<u>YES</u>		
7. FORMS ACCEPTABLE:	<u>YES</u>		
8. CHAIN-OF-CUSTODY AGREES:	<u>YES</u>		

COMMENTS: Method associated quality assurance and control criteria were met. Sample 12-B-1/West is identified as 12-B-/West in the report. The multipeak chromatograms produced from analyses of samples 12-B-1/East and 12-B-1/West did not identically match the lab's diesel or oil standards, but eluted between them, overlapping much of the diesel elution range. The responses were quantitated using the diesel calibration and should be considered estimates of the hydrocarbon concentration. Sample 12-B-1/East was used for the matrix spike and matrix spike duplicate. Recoveries were outside the upper control limit, attributed to matrix effects.

NEL LABORATORIES

Reno • Las Vegas
Phoenix • Burbank

Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

CLIENT: Bechtel Nevada
P.O. Box 98521, M/S NTS273
Las Vegas, NV 89193-8521
ATTN: Ted Redding

PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

NEL ORDER ID: L9802053

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 2/6/98.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.
Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.
Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

Michael Amasat for S.V.W.
Stan Van Wagenen
Laboratory Manager

2/13/98
Date

CERTIFICATIONS:

	Reno	Las Vegas	Burbank
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified

	Reno	Las Vegas	Burbank
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B1 @ 15'
DATE SAMPLED: 2/4/98
NEL SAMPLE ID: L9802053-04

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Suzanne

PARAMETER	Result	Reporting Limit
Diesel Range (C12-C22)	230 mg/Kg	20. mg/Kg
Total	230 mg/Kg	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B1 @ 18'
DATE SAMPLED: 2/4/98
NEL SAMPLE ID: L9802053-05

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Suzanne

PARAMETER	Result	Reporting Limit
Diesel Range (C12-C22)	370 mg/Kg	20. mg/Kg
Total	370 mg/Kg	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B1 @ 20'
DATE SAMPLED: 2/4/98
NEL SAMPLE ID: L9802053-06

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Suzanne

PARAMETER	Result	Reporting Limit
Diesel Range (C12-C22)	ND	20. mg/Kg
Total	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B1 @ 25'
DATE SAMPLED: 2/4/98
NEL SAMPLE ID: L9802053-07

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B1 @ 30'
DATE SAMPLED: 2/4/98
NEL SAMPLE ID: L9802053-08

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B2 @ 10'
DATE SAMPLED: 2/5/98
NEL SAMPLE ID: L9802053-09

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B2 @ 15'
DATE SAMPLED: 2/5/98
NEL SAMPLE ID: L9802053-10

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B2 @ 20'
DATE SAMPLED: 2/5/98
NEL SAMPLE ID: L9802053-11

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: 2-300/B2 @ 25'
DATE SAMPLED: 2/5/98
NEL SAMPLE ID: L9802053-12

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid
DILUTION: 2

EXTRACTED: 2/6/98
ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20. mg/Kg

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: Area 2 & 25
PROJECT NUMBER: 2150

CLIENT ID: Method Blank
DATE SAMPLED: NA
NEL SAMPLE ID: 980206tphs-ase-BK

TEST: Total Extractable Petroleum Hydrocarbons Fuel Finger Print by EPA Method 8015M, July 1992

MATRIX: Solid

EXTRACTED: 2/6/98

ANALYZED: 2/9/98

ANALYST: Michael

<u>PARAMETER</u>	<u>Result</u>	<u>Reporting Limit</u>
Diesel Range (C12-C22)	ND	20 mg/Kg

SUPPORTING

DATA

SAMPLE DELIVERY GROUP: SDG V352 CLIENT: RP - JERRY BONN
LABORATORY: NEL
FINAL REPORT RECEIVED: 03/16/98
DATE REVIEWED: 03/24/98 REVIEWED BY:

TPH - DIESEL:

MATRIX: SOILARE TPH DATA ACCEPTABLE: YESARE CRITERIA MET

1. QC SAMPLES ACCEPTABLE
2. MATRIX SPIKE ACCEPTABLE
3. METHOD BLANK ACCEPTABLE
4. HOLDING TIMES ACCEPTABLE

YESYESYESYES# DAYSACCEPTABLE

a. Earliest Date Sampled:	<u>2/2/98</u>	<u>0</u>	<u>0</u>
b. Date ASL Received:	<u>N/A</u>	<u>N/A</u>	<u>1</u>
c. Date Contract Lab Received:	<u>2/6/98</u>	<u>4</u>	<u>5</u>
d. Date Extracted:	<u>2/6/98</u>	<u>4</u>	<u>14</u>
e. Date Analyzed:	<u>2/9/98</u>	<u>3</u>	<u>40</u>

5. CALCULATIONS ACCEPTABLE: YES
6. CORRECT CONC. UNITS USED: YES
7. FORMS ACCEPTABLE: YES
8. CHAIN-OF-CUSTODY AGREES: YES

COMMENTS: Method associated quality assurance and control criteria were met. Preliminary results were transmitted to the client on 2/10 and 2/17/98.

PROJECT / CLIENT INFORMATION					REPORT INFORMATION					SAMPLE INFORMATION																			
Project: P.O. 16374		BN Org#:		Send Report to: TEP READING					Sampling Site:																				
Charge Number:		ASL Prog:		Phone:		Fax:		M/S:		The samples submitted contain (check); ☒ Hazardous ☐ Radioactive ☐ Unknown contamination. If known, attach a brief narrative summary identifying contaminants. This information will ensure compliance with applicable regulations and allow for the safe handling of the sample materials. HYDROCARBON																			
Project Manager:				Turnaround: ☐ Standard [30 days Non-rad, 60 days (or negotiated) Rad] ☐ RUSH Preliminary by: Final by:																									
Phone:		Fax:		M/S:		Final report format: ☐ Standard ☐ NTS-WAC ☐ Other:																							
LAB USE ONLY					ANALYSES & METHOD										SAMPLE RECEIPT INFORMATION														
Rad SDG:		Non-rad SDG:			TPH AS DIESEL 80/100										Are all sample containers received intact? ☐ Y ☐ N Explain Discrepancies:														
Rad Packet:		Non-rad Packet:													Do the labels agree with this form? ☐ Y ☐ N Explain Discrepancies:														
Client Services Representative:															Was a Material Clearance Tag submitted? ☐ Y ☐ N Explain Discrepancies:														
Will these analyses be performed under a signed SOW? ☐ YES ☐ NO If so, do analyses entered here agree with the SOW? ☐ YES ☐ NO ☐ N/A If not, identify the variation: CSR initials indicating review and approval: Date:																													
I T E M	ID/DESCRIPTION	SAMPLING		MATRIX											COMMENTS (Preservative, size/volume, MS/MSD, special analysis, rad matrix code, count time, etc.)														
		DATE	TIME																										
0	2-300/B2@20	2/5/98	1000	SOIL	X	-11											X 24hr * ③												
1	2-300/B2@25	2/5/98	1100	SOIL	X	-12											X 24hr * ②												
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
Transfer of samples submitted for analyses										Complete if samples will be shipped to an OFF-SITE Subcontract Laboratory																			
Sampled/Relinquished (Signature)					DATE / TIME					Received by (Signature)					Relinquished (BN Representative Signature)					DATE / TIME					Received (Courier & Tracking Info.)				
Jay Ben					2-6-98/9:15 AM					Michael Masoch																			
															Relinquished (Courier & Tracking Info.)					DATE / TIME					Received (1st tier Subcontractor Rep)				
															Relinquished (1st tier Subcontractor Rep)					DATE / TIME					Received (2nd tier Subcontractor Rep)				

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Reno • Las Vegas
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Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

CLIENT: Bechtel Nevada
P.O. Box 98521, M/S NTS273
Las Vegas, NV 89193-8521
ATTN: Ted Redding

PROJECT NAME: NA
PROJECT NUMBER: 2151

NEL ORDER ID: L9802126

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 2/13/98.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.
Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.
Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

Stan Van Wagenen
Laboratory Manager

2/13/98
Date

CERTIFICATIONS:

	<u>Reno</u>	<u>Las Vegas</u>	<u>Burbank</u>
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified

	<u>Reno</u>	<u>Las Vegas</u>	<u>Burbank</u>
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

NEL LABORATORIES

CLIENT: Bechtel Nevada
PROJECT NAME: NA
PROJECT NUMBER: 2151

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, July 1992
METHOD: EPA 8015M
MATRIX: Solid

ANALYST: Suzanne

CLIENT SAMPLE ID	SAMPLE DATE	NEL SAMPLE ID	RESULT mg/kg	C.R.	Reporting Limit	Surrogate Recovery*	EXTRACTED	ANALYZED
2-300/B3 @ 10'	2/9/98	L9802126-01	ND		10. mg/kg	65 %	2/13/98	2/18/98
2-300/B3 @ 15'	2/9/98	L9802126-02	ND		10. mg/kg	64 %	2/13/98	2/18/98
2-300/B3 @ 20'	2/9/98	L9802126-03	ND		10. mg/kg	67 %	2/13/98	2/18/98
2-300/B3 @ 25'	2/9/98	L9802126-04	ND		10. mg/kg	55 %	2/13/98	2/18/98

Note: The reporting limit for Oil Range Organics in soil is 50 mg/kg.

QUALITY CONTROL DATA (Total for Gas and Diesel Range):

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 980213tphs -BLK	ND	< 10. mg/kg	87 %	NA
LCS, 980213tphs - LCS	98 %	55 - 102 %	86 %	NA

ND - Not Detected

*Surrogate used was Octacosane, acceptance limits 53-111%.

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SAMPLE DELIVERY GROUP: V357CLIENT: RP - JERRY BONNLABORATORY: NELFINAL REPORT RECEIVED: 4/16/98DATE REVIEWED: 4/22/98REVIEWED BY:

TPH - DIESEL:

MATRIX: SOILARE TPH DIESEL DATA ACCEPTABLE: YESARE CRITERIA MET

1. QC SAMPLES ACCEPTABLE	<u>YES</u>
2. MATRIX SPIKE ACCEPTABLE	<u>N/A</u>
3. METHOD BLANK ACCEPTABLE	<u>YES</u>
4. HOLDING TIMES ACCEPTABLE	<u>YES</u>

	<u># DAYS</u>	<u>ACCEPTABLE</u>
a. Date Sampled: <u>2/9/98</u>	<u>0</u>	<u>0</u>
b. Date ASL Received: <u>N/A</u>	<u>N/A</u>	<u>1</u>
c. Date Contract Lab Received: <u>2/13/98</u>	<u>4</u>	<u>5</u>
d. Date Extracted: <u>2/13/98</u>	<u>4</u>	<u>14</u>
e. Date Analyzed: <u>2/18/98</u>	<u>5</u>	<u>40</u>

5. CALCULATIONS ACCEPTABLE:	<u>YES</u>
6. CORRECT CONC. UNITS USED:	<u>YES</u>
7. FORMS ACCEPTABLE:	<u>YES</u>
8. CHAIN-OF-CUSTODY AGREES:	<u>YES</u>

COMMENTS: Method associated quality assurance and control criteria were met. All samples were reported as non detects at the Reporting Limit 10 mg/kg. Preliminary data were faxed to the client on 2/25/98.

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